PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

Vol. CIII AUGUST 6, 1936 No. 6

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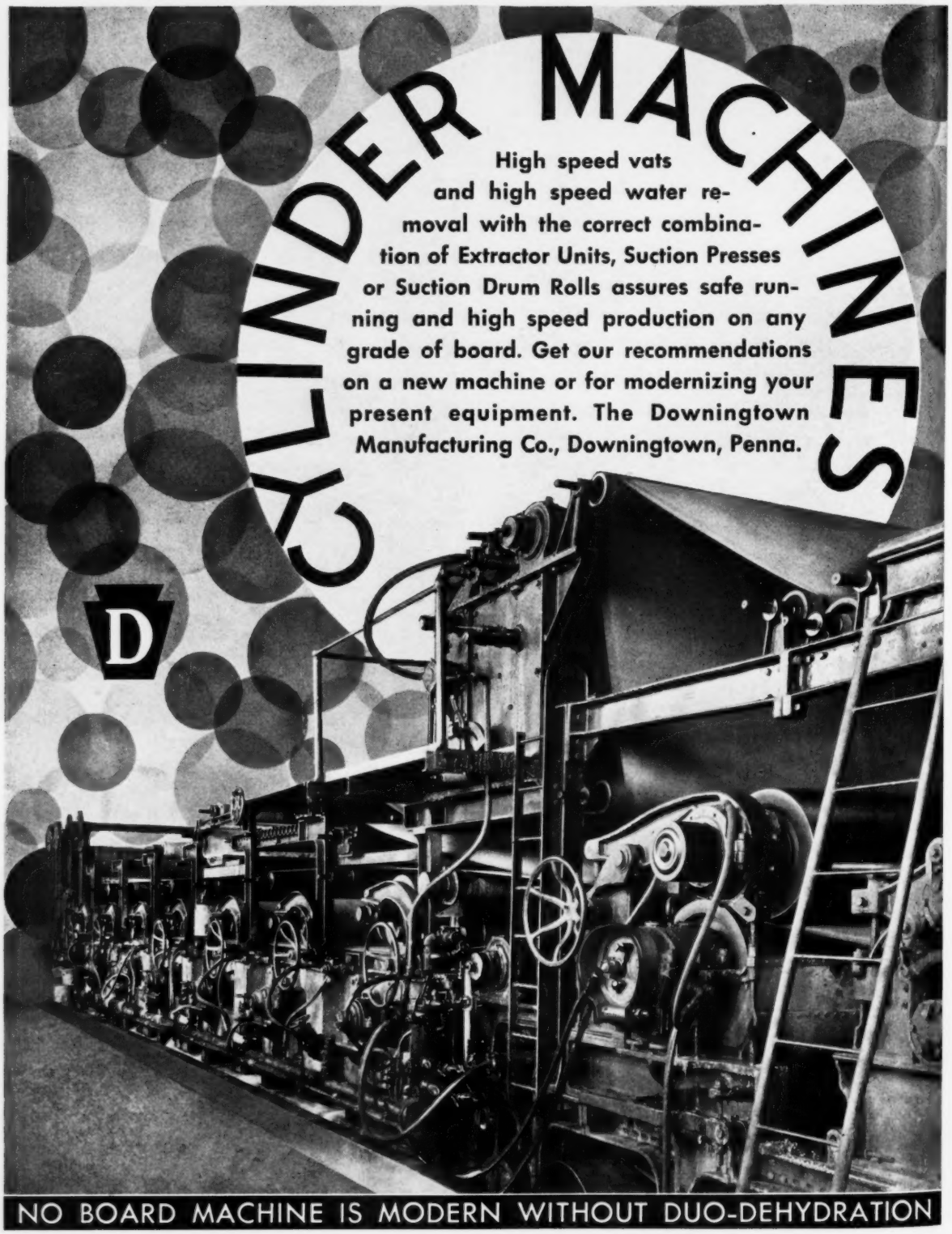
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ESTABLISHED 1872

SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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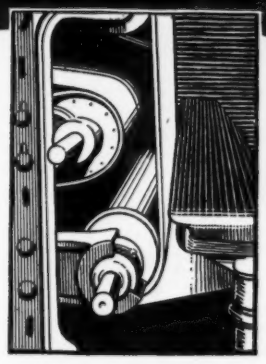
ORR FELTS



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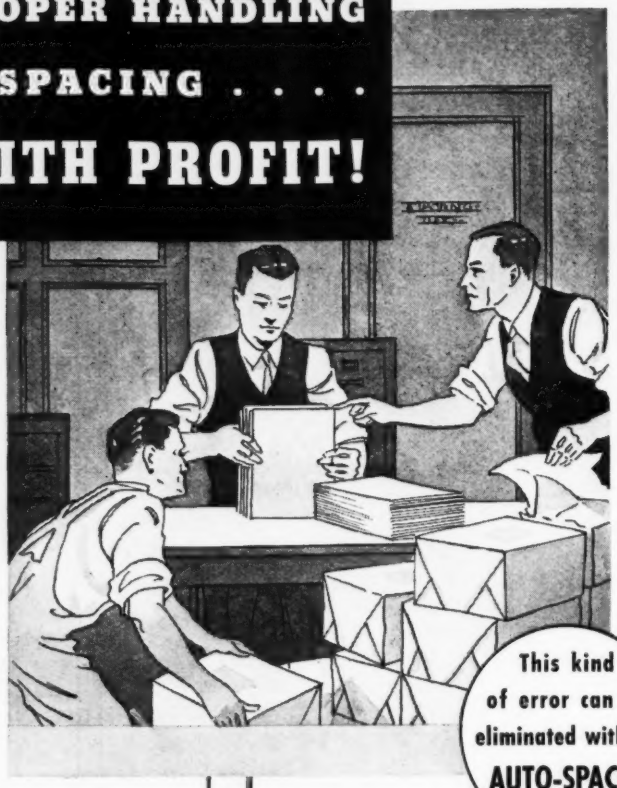

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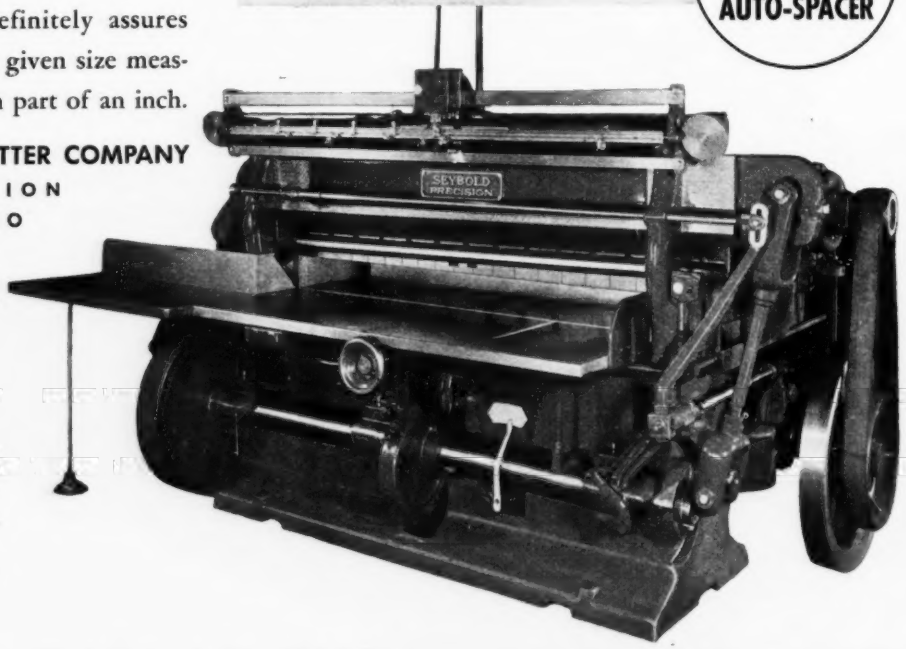

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PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

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Great Northern Advances Newsprint Prices

Offers Contracts for 1937 At $1.50 Increase Over 1936 Quotations—New Price for Forthcoming Year Accordingly Will Be $42.50 Per Ton Delivered —Quotation Named Less Than Hitherto Predicted by Various Interests

The Great Northern Paper Company took the initiative early this week in announcing a price of $42.50 a ton for newsprint for 1937 delivery, up $1.50 a ton from present quotations. The same company took the lead last year in effecting a $1-a-ton increase in newsprint.

A. N. P. A. Comment

Advising its members of the action, the American Newspaper Publishers' Association issued the following bulletin:

"In view of the restrictions by the provincial governments of Quebec and Ontario prohibiting mills in their provinces from making new contracts of any kind prior to August 15, and the recent advances by Canadian manufacturers of $10 a ton to publishers in South America, it is believed that the Great Northern announcement is an important one to United States publishers. It establishes the maximum market price for 1937.

"It is suggested that A. N. P. A. members consider this independent policy of the Great Northern Paper Company in relation to the thought set forth in the annual reports of the A. N. P. A. newsprint committee for the year 1935 and 1936, that:

"It would seem that the best defense publishers have against the intervention of the governments of the Provinces of Quebec and Ontario to force artificially an increase in newsprint market prices, is to place their commitments as far as possible with United States mills, or with mills operating in foreign countries, whose governments have not threatened to interpose themselves into the newsprint market."

Publishers Praise Leadership

When informed of the action of the Great Northern Paper Company, E. W. Preston, publisher of the *Boston Herald-Traveler*, said:

"The Great Northern Paper Company has again taken leadership in establishing the maximum market price of newsprint in North America. While publishers have had increases in advertising and circulation sales so far in 1936, they have had corresponding increases in payroll and materials used in the fabrication of their newspapers. It is my understanding that the Great Northern Paper Company arrived at this proffered price after a sincere and intelligent consideration of the financial condition of publications as well as the newsprint industry.

"The price named by the Great Northern Paper Company is less than those intimated by spokesmen for the newsprint industry in general. It is evident that newspaper publishers must seek increased advertising rates as well as larger volume as an offset to current and anticipated manufacturing costs."

W. G. Chandler, general business manager of the Scripps-Howard Newspapers, wired the American Newspaper Publishers' Association as follows:

"The action of the Great Northern Paper Company is characteristic of their far-sighted leadership in the newsprint industry. Scripps-Howard newspapers have agreed to this price and extended their contract with Great Northern another year."

Ask Control of Pulpwood Exports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936.—According to a report the Central Association of Finnish Farmers has recently appealed to the Finnish government to institute a control on pulpwood exports says American Consul Archibald E. Fray at Helsingfors.

The association believes that an international agreement should be drawn up to restrict the supply of pulpwood and thus avoid sales at cut rate prices. It is stated that restriction of pulpwood exports is of importance also from the standpoint of the supply of raw material for the Finnish chemical pulp industry.

Paper Men Must Show Cause by Oct. 13

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C. August 5, 1936.—The Ninth Circuit Court at San Francisco at the instance of the Federal Trade Commission has issued a rule requiring the Pacific States Paper Trade Association, its officers and members, and the officers and members of local associations affiliated with it, to show cause October 13 why they should not be adjudged in contempt of the Court for having disobeyed its decree of May 2, 1927, affirming the Trade Commission's cease and desist order directed against price fixing agreements in the sale of paper and paper products in interstate commerce.

Higher Newsprint Prices Predicted for 1937

Lord Rothermere, English Newspaper Magnate, Strongly Advocates Advance to $50 Per Ton, f.o.b. Mill— Views of Canadian Newsprint Officials More Modest—Opinion Is That Increase Will Range From $2.50 to $5.00

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 3, 1936—Heavy scale buying of newsprint securities has been an outstanding feature of trading on the local bond and share markets during the past week. The increased demand for these issues coincided with the announcement that Lord Rothermere, the head of the London *Daily Mail* string of newspapers, strongly advocated a price of $50 per ton f.o.b. mill for Canadian newsprint for next year. Various representative newsprint operators here have been interviewed in relation to Lord Rothermere's views, and while not one could be found who would seriously contemplate such an increase, it is evident that there is a widely held belief that a moderate increase in the domestic price is almost a certainty for next year.

Guesses as to the increase in price range from $2.50 per ton to $5 per ton, with the suggestion that a $2.50 increase may be negotiated for the first half of the year, leaving the door open for a further increase in the price in the second half. The further news that the price of newsprint in the United Kingdom is likely to be maintained at the existing level for 1937, namely £10 per long ton delivered, is without important implication in the Canadian newsprint industry, with the value of the pound sterling at approximately $5.01, the English price of slightly over $50 per long ton represents approximately $45 per short ton, which in turn compares with the $41 per short ton delivered which Canadian mills are now receiving from United States customers.

In the comment published here on Lord Rothermere's views it is pointed out that the English newspaper magnate is also a heavy investor in newsprint manufacturing concerns on this side of the Atlantic, he and his associates controlling the Anglo-Newfoundland Development Company in Newfoundland and the Anglo-Canadian Pulp and Paper Mills in Quebec as well as having large holdings of the bonds and stocks of Consolidated Paper Corporation of Montreal and Abitibi Power and Paper Company of Toronto.

Lord Rothermere's suggestion of a price of $50 f.o.b. mill as against the current price of $41 delivered, is held here to be absolutely ridiculous, as it would mean an increase of about $16 per ton. As showing what this would entail, last year's figures may be quoted. Canadian production of newsprint last year was 2,750,000 tons at $41 per ton though actually the average price did not work out at that figure, the gross revenue would be $113,000,000. Had the figure mentioned by Lord Rothermere been in effect the gross income would have been $44,000,000 more.

The Hon. Gordon Scott, receiver for Price Bros. & Co., while stating that conditions are bound to bring about an increase in price which is both justified and necessary, does not believe the increase can approximate that suggested by Lord Rothermere and furthermore says that the industry should endeavor to prevent too drastic an increase.

Col. C. H. L. Jones, president of the Mersey Paper Company, of Liverpool, N. S., says he has met no publisher who does not admit that there should be an increase, as the present price will not permit most mills to get back a new dollar for an old one.

Robert P. Kernan, president of Donnacona Paper Company, says he is in favor of a price increase for 1937, but a more moderate one than that suggested by Lord Rothermere. He does not believe North American publishers could pay such an increase as Lord Rothermere suggests without severe adjustment of their business which might mean diminished consumption. Even if such an increase were feasible he questions whether it would be wise from the point of view of the industry.

On behalf of the International Paper Company, the statement is made that, "We do not agree with Lord Rothermere's views on newsprint price as quoted. We feel that any such price is unwarranted."

Rolland Paper Pays Dividend

The Rolland Paper Company, Ltd., has declared an initial dividend of 25 cents per share on the common stock. The stock is not being placed on a regular dividend basis, but distributions will be made from time to time as warranted by earnings. The company is engaged in the manufacture of high grade bond, writing and ledger papers and sales are showing a steady increase. In order to assure the continuity of the management, a voting trust has been established, placing control of the company in the hands of three trustees, Jean Rolland, Jean Paul Rolland and W. C. Pitfield, for a period of five years.

Pulpwood Drive To Port Royal

From Saint John, N. B., it is announced that within the next three weeks or so the Port Royal Pulp & Paper Company expects to have rafted down the Saint John River a total of some 33,000 cords of pulpwood. This is three times more than the quantity brought down last year. A. J. Lacrois, manager of the company, states that next year the company expected to drive about 40,000 cords on the river.

Lightning Strikes Mill

Fire at the Anglo-Canadian Pulp and Paper Mills in Quebec on July 28 during an electric storm caused damage of $25,000, mill officials estimated.

Lightning struck the plant, short-circuited and burned out some of the grinder motors at the mill. Officials said the mill will operate on part-time during the next week while repairs are being made.

A small tug which the company operates at St. Gregoire, about two miles below the mill, also was struck by lightning, causing fire which badly damaged the vessel.

Smith-Lee and Kleen Kap Give Bonus

ONEIDA, N. Y., August 1, 1936—Announcement is made of the establishment of a bonus for all employees of the Smith-Lee and Kleen Kap Corporations with six months' service. Officers of the two companies state that about 150 employees will be affected. The concerns manufacture bottle caps and paper containers, using the same factory but maintaining separate identities although under the same ownership. The bonus will amount to about $20 for each employee.

Chicago Paper Industry Displays Strong Trend

Outlook for Early Fall Considered Bright, Especially for Kraft and Ground Wood Papers—Fine Paper Business Only Moderately Active—Book Paper Output Improves—Newsprint Paper Sentiment More Optimistic

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 3, 1936—Important meetings of book paper and sulphite bond paper manufacturers held the market spotlight in Chicago last week. Otherwise the market was dull and comparatively featureless with contrary reports being issued by firms developing the same grades. The undercurrent continued strong with bright prospects for the early Fall, ground woods and krafts obviously being featured in the advance prognostications.

An average of the reports on kraft, spotty because of seasonal and geographic conditions, would indicate a continued fair amount of trade in these lines. Books and covers were little changed. Fine papers had only a fair amount of actual business and inquiries to report. The lower grades of sulphite bonds continued to hold steady. Newsprint reports continued to be fairly encouraging for the future. Book mills, incidentally, indicated slightly improved production over the previous two weeks. The board market remained unchanged as did the waste paper market, which found only flurries of interest in a few of the better grades.

Salesmen's Record Golf Outing

The recent monthly golf tournament of the Salesmen's Association of the Paper Industry, Midwest Division, broke all records for attendance. Ninety-three members and guests were present on July 24 at the Knollwood Club as an indication of the way in which these outings have developed as good-will builders. Members of the association are confident that the outings are even more important in knitting the trade together than they are as enjoyable affairs.

With Jack Burrus, vice-president, presiding, and with Burt Fisher, golf chairman, doling out the prizes, the following members and guests were awarded tokens of their ability to master the difficult Knollwood course:

Blind bogey, E. D. Buchanan; low gross, Carr Sherman; low net, 17 and under, Rock Moran; low net, 18 and over, Alex Shennon; low putts, Bill Jones; low gross, par three holes, A. Brown; low gross, par five holes, Ralph McManus; low net, first nine, R. C. Johnson; low net, second nine, Bob White; high gross, tenth hole, Bruce McFarlane; low putts, first nine, Ed Shaeffer; low putts, second nine, Henry Fulton; high gross foursome, Bob Wales, Dick Wesley, Ray Gleason, Sam Dillon; low putt foursome, Alex Shennon, Ben Babbitt, Harry Birt, Spence Heberling; low net foursome, Eric Rohrer, Greg Frelinger, Paul Wesco and Hamilton Vose.

The next association outing will be held at the Westmoreland Country Club on August 21. The final event, in September, will be held in conjunction with the Fall meetings of the National Paper Trade Association.

News of the Industry

The freight traffic managers committee of the Trunk Line Association is reported to have approved extending the rate on imported and intercoastal woodpulp to Miami Valley points and Chillicothe from January 31, 1937, to August 31, 1937. The reduced rate is 20½ cents applicable from Hampton Roads and Baltimore and is credited with being the means of securing the rail carriers a considerable amount of the woodpulp traffic which had been lost to direct steamers coming into the Great Lakes from the Baltic region.

In sending out its revised price list the Swigert Paper Company also announces the availability of the Sulgrave Dummy Service and Dummy Selector and Suggestor as valuable adjuncts to the printing and advertising trade. The 1025 Sulgrave dummies, composed of three grades of paper in twelve different sizes and 56 color combinations, are wrapped in cellophane. The selector and suggestor describes in detail the sizes of the dummies, number of pages, color, finish, binding, mailing costs and stock requirements to produce 1000 units. A cross index is also furnished to provide an easy method of selection of size, finish, color or stock.

The Capital Paper Company, important downstate paper house, has reported that Walter Lewke has been appointed a member of the sales force working out of the Peoria office. Mr. Lewke, who has had more than eight years of experience in the paper business, is to confine his sales activities only to territory within the State.

Another downstate Illinois firm has been expanding, according to a report from Lincoln stating that the Lincoln Paper Company has opened offices and warehouse and will deal in janitor and paper supplies. Jerry Owings is the manager of the company.

C. L. Streeter, who recently announced his appointment as local and midwest representative of the comprehensive line manufactured by the P. H. Glatfelter Company, is also to handle the complete Perfection gummed paper line from his offices at 538 South Clark street. Mr. Streeter is a veteran sales representative well known in the Middle West.

The Midwest Division of the Salesmen's Association of the Paper Industry has transferred its immediate allegiance to the Sherman Hotel and will henceforward hold its widely attended Monday noon meetings at that place. The initial meeting in the new headquarters was held July 27 with the good attendance reviewing the golf outing of the Friday before and having the usual round-table discussion of business conditions.

Mr. and Mrs. W. P. McNulty left on July 26 for an extended trip through Canada and the eastern States. Mr. McNulty, an executive of the McNulty Paper and Twine Company, Chicago, plans to visit Quebec and Toronto, journey down into the New England States and include Long Island Sound on the family itinerary. The date for the return trip has not been announced.

St. Regis Reinforces Dam

[FROM OUR REGULAR CORRESPONDENT]

NORFOLK, N. Y., August 3, 1936—Work has been started here on the reinforcement of the dam and flume which supplies water power for the St. Regis Paper Company. The flume is to be completely relined and otherwise strengthened. The dam will receive a coating of cement completely across its face and contract has been awarded to the Cement Gun Company, of Philadelphia. It is estimated that several weeks will be necessary to complete the improvements and a large force of workmen are being employed.

Big Boiler Plant Speedily Erected at Thorold

Modern Building with Capacity of 300,000 lbs. of Steam Per Hour Provided for Ontario Paper Co. in Six Months—Foster-Wheeler Co. Designed, Erected and Placed into Service Two 458-lb. Boilers in Only Twenty Weeks

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 3, 1936—When Ontario Hydro Power Commission notified Ontario Paper Company that it could only count on power for steam generation at Thorold, Ont., until May 1, 1936, many engineers thought that the company had been presented with an almost insoluble problem.

The story is now told of how, in six months of uncertain winter weather the company, its engineers and various Canadian and United States firms were able to provide a modern plant with a capacity of 300,000 pounds of steam per hour, a task which usually takes from nine to twelve months.

On November 1, 1935, the management selected a committee from its executive and engineering staff under R. W. Shaver to study the situation. As soon as major engineering decisions were made tenders were asked and on December 13 Foster Wheeler Company got the order for two 458-pound boilers.

This company had only twenty weeks to design, construct, erect and put in service these boilers. To complicate matters it was found it would be unwise to put the new boilers in the old buildings. So the old plant was demolished and the new had to be erected at the least favorable part of the year.

Altogether, 500 tons of steel were ordered to go into the building. The boilers selected are of a three-drum vertical type. The drums are all seamless of fusion welded construction. May 13 last saw the completion of the steam plant which the Governor-General officially opened a short time later.

Flying Paper Salesman

One of the most enthusiastic airmen with service in the Great War is C. E. French, of the Toronto sales staff of Howard Smith Paper Mills. "Ernie" has been covering part of his sales territory by airplane for some time. Just now he is in France with the 6,000 Canadian pilgrims who went over to visit the battlefields on which troops from this country fought and to witness the unveiling of the Canadian monument of Vimy Ridge. He expects to return on the dirigible Hindenburg. Mrs. French, who also is an experienced flier, accompanied her husband.

Great Lakes Timber Limits

Representatives of the Great Lakes Paper Company conferred with Ontario Government officials last week over allocation of timber limits, cutting rights and stumpage charges. Re-allocation of timber limits was provided for by legislation enacted at the last session of the Legislature. While decision has not been reached this week it is believed that the company is seeking a better operating arrangement with the Government than it has had during the period of receivership which terminated with the recent reorganization. The deal with the Government may determine whether the company is again to become one of the most successful industries in Fort William.

Paper Demand Fairly Active

Casting up their accounts for the summer months of this year the paper wholesalers are finding that while sales have dropped off they have been doing a better business so far this summer than last. The same applies to the mill trade which has been keeping up fairly well. Activities in both the manufacturing and wholesale ends of the paper industry, principally in respect to fine papers, were affected somewhat by the protracted hot weather but a fair demand for all lines of paper has existed this summer and most firms report better business so far this season than last. Of course there is August yet. That month is usualy a tough one in the sales of all commodities and paper men are looking for a quiet four weeks until salesmen and customers are back at their desks again.

Despite hot weather and the vacation period the demand for book, bond and ledger papers, together with writings, has kept up on a limited scale and it is believed that there will be liberal replenishment orders when the summer season ends. There is a good call for greaseproof, waxing and glassine and this has kept up all season. Converting lines are still quiet, demand for envelopes and general stationery lines having been light for some months. Despite a lot of domestic competition trade in light weight papers is keeping up well and both mills and distributors are finding business quite good.

The coarse paper market is still somewhat dull although there has been a slight improvement in demand for wrappings and paper bags. More attention is being paid to protective organization within the wrapping paper industry and the benefits are already being experienced by mills and distributors.

Mills making manilas, blanks, bristols and blotting paper report a fair demand for these products and business with them has been keeping up fairly well.

Remington Rand, Inc. Declares Dividend

Remington Rand, Inc., declared July 27 the regular quarterly dividends of 15 cents in cash and 1 per cent in stock on the common stock. J. H. Rand, Jr., president, estimates net income for the June quarter will be less than $35,000 under the results for the same period in 1935, after absorbing all strike expenses and idle plant burden. In the second quarter last year net profit was $478,704, or 12 cents a common share.

The loss in wages to employes during the strike aggregated $1,361,000, Mr. Rand reported to the directors. Current booked orders are running well ahead of the seasonal volume, he said, and are about 30 per cent ahead of 1935. This week all plants with the exception of that in Norwood, Ohio, went on an overtime basis.

Japan Makes Christmas Holly Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936.—Assistant Trade Commissioner C. H. Boehringer at Tokyo reports that one of the Japanese manufacturers of transparent cellulose sheeting is turning out a product on which Christmas holly designs have been imprinted by means of wooden blocks. This is the first time that such sheets have been made in Japan. The report states that it is likely that they will be exported to the United States in the near future.

Taylor Co. to Install New Fourdrinier Machine

Moore & White Co. Building New Unit for Betzwood Plant—Also Making Extensive Changes in Tissue Machines for Scott Paper Co.—U. S. Gypsum Co. Awards Contract to Same Firm for Machine for Asbestos Products

[FROM OUR REGULAR CORRESPONDENT]

PHILADLEPHIA, Pa., August 3, 1936—The U. S. Gypsum Company of Chicago has awarded to Moore & White Company of Philadelphia the contract for building a machine for making asbestos products and sidings. The Moore & White Company is also building a Fourdrinier machine for making fiber paper for the Taylor Company, of Betzwood, Pa., and has commenced work on extensive changes on tissue machines for the Scott Paper Company of Chester.

A. M. Collins Staff Changes

Announcement has just been made by Robert C. Fay, sales manager of A. M. Collins Manufacturing Company,

L. R. CRAMBLET

Philadelphia, of the appointment of L. R. Cramblet as western representative of the above company, manufacturers of Tone Coated Book, Cover and Specialty Papers. J. J. Hood, who represented the company in the western territory, is retiring on August 1 on a company pension after fifty years' service.

For the past two years Mr. Cramblet has been sales manager and on the Board of Directors of Whiting-Patterson Company, Inc., Philadelphia. Since January 1931 he has been associated with Whiting-Patterson Company, first as salesman in their Francy and Specialty Paper Department in New York City, and in October 1932 became manager of that department in charge of merchandising and styling, purchasing and sales.

He became sales manager of Whiting-Patterson Company in June, 1934. At the beginning of his business career he was for ten years—1915 to 1925—owner of a printing business in the Pittsburgh district. In 1925 he entered sales work and was appointed to the sales staff of the Buzza Company, art publishers of Minneapolis.

From the Buzza Company he joined the sales staff of C. R. Gibson & Co., lithographers and publishers of New York City. His personal selling carried him throughout the Middle Western States, in which territory he will represent A. M. Collins, working from the Collins office, Conway Building, Chicago. His territory will extend from the Mississippi to the Pacific Coast and will include Indianapolis and Louisville as well.

Mr. Gamblet, with his experience in the printing and lithographic fields, as well as in merchandising fine papers and fancy and coated specialties, is particularly fitted for his new work, Mr. Fay says.

Effective as of August 1, the A. M. Collins Manufacturing Company also announces the transfer of Carl F. Schultheis from his position as sales service manager to that of New England representative. Mr. Schultheis' territory will include all of the New England States, Eastern Canada, New York State, outside of New York City and portions of Pennsylvania. H. L. Simons, Jr., who has formerly covered this territory, will confine his activities to the New York and Philadelphia Metropolitan areas. Arthur E. Dorval assumes Mr. Schultheis' duties as sales service manager. For several years Mr. Schultheis has been connected with Collins and has gained a wide circle of friends in the fine paper and specialty fields. Previous to his connection with Collins, Mr. Schultheis was in the electrical engineering field and his technical training has stood him in good stead in the solving of technical paper problems.

Richard E. King, newly appointed advertising and sales promotion manager of the A. M. Collins Manufacturing Company, succeeds F. J. Clifford, who recently resigned.

With the return of business to a more normal basis the A. M. Collins Company with its line of fine papers and specialties is enjoying a substantial increase. Buyers are again realizing that the use of fine book and cover papers bring greater return for the advertising dollar.

Norbert A. Considine Honored

The Board of Governors of the Paper Trade Association of Philadelphia gave a luncheon to the President, Norbert A. Considine, at the Down Town Club, Philadelphia, on Friday, July 31, prior to his departure for an extended trip to Germany and Scandinavia. Mr. Considine sailed on the *Bremen* on August 1, and after a few days at the Olympic Games in Berlin will proceed to Finland where he is going on official business in connection with the affairs of Considine & Co.

Considine & Co., for years was active in import and export trade, and for the last several years, because of the depression in the Latin-American market, has been inactive. The activities of this corporation are being revised, and it is expected that there will be news of important developments in connection with the affairs of this company within the next few months. Mr. Considine has been Vice-Consul for Finland at Philadelphia for the past twelve years. It is understood that official business in connection with the Vice-Consulate will also engage his attention, while he is visiting Finland.

Mr. Considine will not return before October. Because of his absence and the possible new developments which occupy a great deal of his time, he tendered his resignation as a member of the Executive Committee of the National Paper Trade Association this week to the president, Oswald F. Marquardt. No announcement has been

made as to his successor on the Executive Committee. The Executive Committee of the National Association was formed upon dissolution of the Code Authority under the N.R.A., and has been in charge of the details of the National Association activities. Mr. Considine was elected to membership of this Executive Committee when it was first formed and re-elected since.

Commenting upon his resignation, he expressed great regret at having to sever his connection, but pointed out that he appreciated that the meeting in Chicago in September would be a very important one, at which the National Association program and detailed activities for the coming year would have to be formulated. Since he would not be able to be present at that meeting or be able to devote much time to National Association activities hereafter, he thought it only fair to place his resignation in the hands of the president of the National Association.

The Board of Governors of the Philadelphia Association declined to accept Mr. Considine's resignation as a Philadelphia member of the National Board, and instead have appointed Ormond Friele, Paper Merchants, Inc., and Vice-President in charge of Fine Papers, an alternate to attend the Chicago Convention.

Downingtown Paper Mill on Full Time

The Downingtown Paper Company has recently gone on 24-hour production schedule in its new board mill. The new mill makes use of the most up-to-date machinery. The Black-Clawson cylinder machine is driven by a Westinghouse single motor drive, making use of their modern electronic type regulator.

New Tissue Machine for Ponds

The Downingtown Manufacturing Company is building the new tissue machine for Ponds Extract Company at Seymour, Conn. This machine will be driven by a Westinghouse electronic regulator type single motor drive. Shipment of the machine is expected to be completed this month.

Boston Paper Industry News

BOSTON, Mass., August 3, 1936—Carter, Rice & Co., Corp., are handling Dura-Glo Hallowell Cover, a new line made by the Hallowell Paper Company. This cover has a surface which is practically non-soilable and retains its original attractive appearance indefinitely. This product, entirely original, is an ideal stock for catalogue covers, menus, receipt books, window display cards and other uses. The cover is made in two weights, two sizes and five colors.

Knight, Allen & Clark, Inc., have taken the agency for Viking Cover, a new line recently brought out by the Chemical Paper Manufacturing Company, Holyoke, Mass. This product has a 25 per cent rag content. Knight, Allen & Clark are carrying a stock in all colors.

Henry L. Goodman, dealer in fancy papers, left Thursday for a number of days on Cape Cod.

Chester M. Edmond, a salesman for Baird & Bartlett Company, box board dealers, has gone to Rye Beach, N. Y., for a vacation of two weeks, accompanied by his family.

Crystal Tissue Co. Increases Profit

The Crystal Tissue Company, Middletown, Ohio, reports as follows for the six months ended June 30:—

Net income after depreciation and other charges, $41,940, equal after preferred dividends to 34 cents a share on 93,000 common shares, compared with $16,756, or 7 cents a common share, last year; net sales, $677,287, against $651,588.

Vassar Brothers To Run Putney Mill

Two brothers less than 25 years old have assumed the ownership of the small paper mill in Putney, Vt., believed to be the oldest plant in the United States for the manufacture of high grade tissue. Walter Louis Vassar, senior member of the firm, is only 24, while his brother, Edwin Alber Vassar, is three years his junior.

Although Edwin will go back to Middlebury college this fall for his senior year, the boys expect by September to begin the manufacture of a fine quality waxing tissue at the former Eagle Tissue mills.

Both boys were born in Turners Falls, Mass. Walter was graduated from Turners Falls high school and Edwin from Mt. Hermon school, at Gill, Mass. The elder brother followed his high school study with a year's course with the General Electric Company at Schenectady, N. Y., while Edwin entered Middlebury college. Papermaking has always held an appeal for the brothers. Their father, Louis Vassar, is superintendent of the Monadnock Paper mills of Bennington, N. H., having had more than 30 years of experience in the field.

Walter worked for five years under his father at the Monadnock mills and went from there to a position as beater foreman and color man at the Wheelwright Paper Company in Leominster. He resigned there July 1 to begin the work of getting the Putney mill ready to run.

The Vassar boys, who will have the counsel of their father in this venture, took over the Eagle mill from the town of Putney which had taken possession for non-payment of taxes. Walter will supervise the manufacture of the paper, while Edwin will conduct the business and sales end of the business. The younger brother has gained practical papermaking experience by working at the Monadnock mill during his summer vacations.

Two mill properties actually came into the hands of the Vassars in the sale, but the former "Owl" mill, situated some rods to the east of the main property, was tumbledown and long-abandoned. It is yielding valuable equipment and timbers, however, for use in reconditioning the Eagle mill. The boys are directing extensive repair work now at the mill and are themselves doing much of the salvaging from the old mill. The Eagle mill is a single-story brick building, with the exception of the beater room which is of wood. Until the depression it was in continuous operation from 1869, making toilet tissue during most of these years.

The boys found the one paper machine, two beaters, the boiler, power plant (needed should the water fail), and other equipment in good condition. Two old beaters from the abandoned mill are being set up to be used as washers. The boys will market their product to a converter in rolls. The mill has an unusually fine water supply, being located on a Green mountain stream which runs through the town.

Johns-Manville Adds Sixty Salesmen

Reflecting the current gain in building activity and an optimistic outlook for improved business, the Johns-Manville Sales Corporation, has hired sixty new building material salesmen who are now attending a training school at the Hotel Astor in New York. The sales course will cover two weeks of intensive study of products used in both remodeling and new construction of houses, commercial and industrial buildings. "The men have been hired from all of our districts east of the Rocky Mountains," said P. A. Andrews, vice-president. "They will be put into the field immediately to augment our present sales force in those territories which have shown a great increase in construction volume."

The Walsh-Healey Government Contracts Act

An Outline of Provisions of the Act and of Proposed Procedure of the Department of Labor in Its Administration, Furnished by the American Paper and Pulp Association—Chief Problem is Flexibility in Working Hours.

The Walsh-Healey Government Contracts Bill was passed at the close of the last session of Congress; it was approved by the President on June 30, 1936. By its terms it becomes operative 90 days from the date of its approval.

The Act provides that "in any contract made and entered into by any executive department, independent establishment, or other agency or instrumentality of the United States, or by the District of Columbia, or by any corporation all the stock of which is beneficially owned by the United States" for materials or supplies valued at more than $10,000, the following stipulations shall be included:

A. That the contractor is a manufacturer of or regular dealer in the material supplied.
B. That all persons employed pursuant to the contract will be paid, without subsequent deduction, the minimum wages as determined by the Secretary of Labor to be the prevailing wages for that work in that community.
C. That no person employed in the manufacture or furnishing of materials under such a contract shall work in excess of 8 hours per day or 40 hours per week.
D. That no child or convict labor will be employed.
E. That no part of the contract or the material used therefor shall come from factories where insanitary or hazardous conditions prevail.

In addition to the fixed penalties set forth in Section 2 of the Act, it is provided that the Comptroller General shall distribute to Government purchasing agents lists of violators and any party so listed will be ineligible for any Government business for a period of three years, unless the Secretary of Labor otherwise recommends.

Exemptions

In special cases, where circumstances seem to merit it, the Secretary of Labor is authorized to exempt individual contractors from the provisions of the Act. The Act specifically does not apply to purchases of such materials or equipment "as may usually be bought in the 'open market'." Questions are likely to arise as to whether or not a given transaction falls under this provision. With respect to this the Secretary of Labor has made the following statements.

"The regulations will probably provide for the purchase of floor stocks without going behind the actual and bona fide seller, when such stocks are in the dealer's possession when he submits his bid. The Government will not permit goods manufactured specifically for a Government contract, however, to become warehouse or floor stocks in order to evade the purposes of this Act. The clause relating to goods purchasable in open market indicates that Congress intended to keep in effect present statutes permitting contracting officers to make purchases in the open market without advertising under certain conditions and also intended that the existing limitations under certain conditions should not be affected by this Act."

The phrase "as may usually be bought in the open market" as used in Section 9 of the Act is the subject of considerable argument. All of the products of the Petroleum Industry, for instance, are of a type that the Government can buy in the open market, although they are furnished according to specifications incorporated in the invitation for bids. Accordingly, sales of petroleum to the Government may fall within the exemption. The Secretary has stated that she was entirely in sympathy with the application of the statute to goods to be manufactured, recognizing the difficulty of ascertaining the condition under which goods in stock had been manufactured.

General Procedure

The Secretary of Labor, who is charged with the duty of administering and enforcing the Act, has announced that before the effective date the Department of Labor will promulgate rules and regulations. On July 16th the Secretary conferred with representatives of industry on the scope and character of the rules. In a press release considerable information is given as to the procedure to be followed. The regulations will provide a uniform procedure for the negotiation of Government contracts and they will enable prospective contractors to know in advance what their obligations will be.

Before the minimum wage provision can be enforced it will be necessary for the Department of Labor to determine the prevailing wage scale for each industry so that prospective contractors may be fully informed as to their obligations. This will require considerable time. Consequently, this part of the Act may not become operative for all industries on September 28th. All other provisions, however, will become effective on the scheduled date. The minimum wage provision will be put into effect when and as the prevailing wage schedules for the various industries are made public.

In a press conference at the time of her sailing for Europe this week, the Secretary of Labor stated that the Department is chiefly concerned with the so-called sweating and labor chiseling industries. In view of this statement the industries that have been maintaining reasonable hours and wages may not be called for hearing for considerable time.

Determination of Minimum Wage Rates

It is proposed by the Secretary that minimum wage rates will be determined after hearings. An Administrative Board within the Department of Labor, empowered to act on all quasi-judicial and regulatory matters, will have the ultimate determination of the rates. This Board will be assisted by a committee drawn from a panel of consultants consisting of industrialists and labor representatives who are familiar with each of the principal industries for which rules, wages and variations are to be made. This is a different system than that used in the NRA where separate advisory committees were set up. In this case representatives of producers, labor and consumers will comprise a single committee.

The Secretary has stated that the Department of Labor will not arbitrarily adopt the minimum wage provisions that were contained in the codes of the various industries without inquiring into present conditions. It is the purpose of the hearings to develop facts concerning current conditions upon which such determination may be based. The Secretary has stated that all interested parties will be

given notice of the hearings and an opportunity to present evidence.

The hearings will be conducted under the direction of a Chief Examiner, who will draw from the panel for consultation the industrialist and the labor representative familiar with each industry and who may also bring into consultation purchasing agents of the Government. After the hearing, the Chief Examiner will make specific recommendations to the Administrative Board and this Board will make the rulings. It is apparently the idea of the Department of Labor to secure the concurrence of a majority of employers in an industry before the minima are established.

The terms of the Act do not make it altogether clear whether the Secretary of Labor is empowered to fix wages for different classes of labor within an industry or whether the power is limited to the fixing of minimum wages for the industry as a whole. The Secretary has indicated in conference that at this time the Department of Labor contemplates the establishment of basic minimum rates only, and that it would not undertake, at least for the time being, to set up classified wage scales on the basis of occupation or skill. At this time also the stipulations will apply only to productive labor and not to clerical or supervisory labor, although where the distinguishing line will be drawn is questionable.

The Act permits the Secretary of Labor to establish wage differentials for different geographic areas. It was pointed out at the conference that the word "locality" used in the Act would be interpreted in the broadest possible sense; possibly the Southern states will be one locality and the rest of the United States another.

With respect to the policy of the Department of Labor regarding the administration of the Act, the Secretary has made the following statement:

"The Act will be administered with scrupulous attention to the necessity of open records of action, public hearings, and recorded analysis of the reasons and limitations of each discretionary action. The rights of manufacturers and contractors will be thoroughly respected and their cooperation invited."

Minimum Hours

The Secretary of Labor does not possess as much authority under the Act in respect to working hours as in the case of wage rates. The Secretary, however, is granted power of exemption. It is not clear what this authority entails.

The Act states that no person employed in the manufacture of goods for sale to the Government shall work in excess of 8 hours per day or 40 hours per week. The Act provides, however, that "the Secretary of Labor may establish reasonable limitations and may make rules and regulations allowing reasonable variations, tolerances, and exemptions to and from any or all provisions of this Act respecting minimum rates of pay and maximum hours of labor or the extent of the application of this Act to contractors, as hereinbefore described." It is questionable what will be the ultimate determination as to whether the Secretary could go to the extent of approving for the paper industry the flexibility of working hours that was incorporated in the industry's code.

The importance of this legislation upon wage rates should not be underestimated. The Federal Government is the largest single purchaser of many commodities; in some degree it purchases all types of commodities. The Act is bound to have important influences upon all industry. The standards that are fixed under the terms of this Act may well become the standards of an entire industry, if not by law, then in practice, for it is unlikely that labor would favor two sets of standards, especially if those applicable to Government contracts were more favorable.

Problems Presented by the Act

One of the chief problems for the paper and pulp industry presented by this Act is its effect upon flexibility in working hours. The paper industry was one of the few industries that was able to convince the NRA of the necessity for averaging working hours over relatively long periods. The industry also obtained provisions for certain exemptions from the universal application of the 40-hour limitation. This flexibility was hardly enough to meet the industry's requirements and any reduction that may result from the provisions of this Act will seriously affect operating conditions in the industry.

During the NRA period the industry established the fact that minimum wage rates should be set at such levels that all manufacturers could abide by them. The rates determined were truly minimum rates and many mills, in fact the majority, paid higher than these minima. Since the termination of the code period many companies have increased wage rates. Because of unprofitable operating conditions, however, many companies, on the other hand, have not been able to do so. The establishment of higher rates, which might through subsequent Federal legislation or practice constitute the standards for the industry as a whole, would undoubtedly create hardships for many producers.

There are obviously many other questions, for instance as to wages, the zone differentials and the male and female differentials. Fortunately the Association has continued the collection of information concerning employment, working hours and earnings since the termination of the code and it has made a recent survey of occupational wage rates. This information will be available to support the industry's position when it is called upon to appear before the Department of Labor.

Paper Demand Improves in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 3, 1936—Business in the wholesale paper market here was well sustained during last week, with, in fact, improvement reported. The volume of sales in fine paper was rather good, according to a number of reports. At one fine paper house, it was stated that July was better than June and better than July a year ago. At a manufacturer's office, it was stated that business was particularly good on tag stock, both in white and natural. Comments on wrapping paper included "fair and gradually improving," "pretty good," and "very good." The box board business continued to show improvement.

In paper stock, old papers moved very freely. Mixed papers and old newspapers remained steady at the same levels, but corrugated boxes advanced to a flat .47½ from .35 to 37½. Not very much business was reported in bagging. Domestic gunny No. 1 declined to 1.75 @ 1.80 from 1.80 @ 1.90. New domestic rags were scarce, with new cuttings very strong, as well as blue overalls and flannelettes. Dealers could sell more new cuttings if they had them. In old domestic rags, roofing stock was very steady. Foreign rags were so high in price, that the demand was negligible.

H. B. Gerber Goes with Williams-Gray Co.

Howard B. Gerber, formerly with the Oxford Miami Paper Company, is now associated with the Williams-Gray Company, paper mill supplies, at 221 North LaSalle street, Chicago, Illinois.

Paperboard Industry Runs at 70 Per Cent

Monthly statistics on paperboard, .012 of an inch or more in thickness, for June, compared with preceding months, have been released by Director William J. Austin, Bureau of the Census, Department of Commerce, and are presented in the following tables. The statistics for June, 1936, were compiled from data furnished by the National Paperboard Association from reports of members and by manufacturers reporting direct to this Bureau.

The production of paperboard for June, 1936, amounted to 279,390 short tons, or 70.8 per cent of the rated capacity of the mills reporting. The ratio of inch hours of operation to rated capacity for June, 1936, was 70.0 per cent, as compared with 69.9 per cent for May, 1936, 65.9 per cent for June, 1935, and 57.4 per cent for June, 1934.

TABLE I
INCH HOURS OPERATED, PRODUCTION, AND ORDERS
(95 MANUFACTURERS)

Year and Month	Operated (Inch hours) (Based on last dryer width) Rated capacity	Operation for month	Per cent of rated capacity	Production (Short tons) Rated capacity	Production during month	Per cent of rated capacity	New orders received during month (short tons)	Unfilled orders, end of month (short tons)
1936								
Jan.	15,251,225	9,963,914	65.3	427,564	279,928	63.4	283,890	94,210
Feb.	14,143,988	9,682,428	68.5	396,354	271,107	68.4	268,843	91,917
Mar.	14,583,725	10,128,474	69.5	411,199	285,257	69.4	290,854	96,202
April	14,627,093	10,452,616	71.5	412,191	294,929	71.6	298,180	99,796
May	14,497,925	10,140,595	69.9	407,729	289,527	71.0	280,899	92,784
June	14,034,560	9,826,380	70.0	394,424	279,390	70.8	282,431	96,402
Total (6 months)	87,138,516	60,194,407	69.1	2,449,461	1,691,138	69.0	1,705,097	.....
1935								
Jan.	15,455,578	9,793,592	63.4	416,501	262,026	62.9	273,151	80,987
Feb.	13,636,918	9,308,323	68.3	366,598	251,870	68.7	252,578	84,341
Mar.	14,709,922	10,029,490	68.2	398,949	275,770	69.1	268,360	79,049
April	14,901,848	9,543,895	64.0	402,831	260,851	64.8	255,730	79,296
May	15,498,589	9,615,348	62.0	418,324	262,463	62.7	259,995	80,367
June	14,284,978	9,418,123	65.9	385,742	256,665	66.5	248,636	78,020
Total (6 months)	88,487,833	57,708,771	65.2	2,388,945	1,569,645	65.7	1,558,470	.....
July	15,592,118	9,397,786	60.3	423,545	260,207	61.4	259,486	78,241
Aug.	15,592,118	10,450,399	67.0	423,545	291,127	68.7	297,349	86,767
Sept.	14,380,430	10,273,750	71.4	390,840	289,596	74.1	307,103	105,088
Oct.	16,108,039	12,404,641	77.0	434,717	345,596	79.5	351,887	107,074
Nov.	13,598,280	10,526,226	77.4	399,897	294,290	73.6	272,477	88,971
Dec.	14,770,746	8,818,058	59.7	400,139	243,594	60.9	234,753	81,894
Total (Year)	178,529,564	119,579,631	67.0	4,861,628	3,294,055	67.8	3,281,525	.....
1934								
Jan.	14,879,791	8,506,259	57.2	406,760	233,182	57.3	220,554	63,665
Feb.	13,227,743	8,475,759	64.1	355,554	227,140	63.9	238,225	75,759
Mar.	15,135,748	9,844,248	65.0	405,206	263,199	65.0	273,298	86,440
April	14,018,872	9,282,387	66.2	376,756	251,324	66.7	237,539	76,867
May	15,274,886	8,716,342	57.1	409,487	231,107	56.4	233,877	81,293
June	14,847,757	8,528,498	57.4	397,005	228,078	57.4	218,369	73,473
Total (6 months)	87,384,797	53,353,493	61.1	2,350,768	1,434,030	61.0	1,421,862	.....
July	14,422,003	7,645,095	53.0	395,518	208,252	52.7	207,352	74,088
Aug.	15,442,025	9,116,133	59.0	428,140	250,931	58.6	251,073	72,386
Sept.	14,323,043	8,935,783	62.4	397,277	243,764	61.4	239,196	73,114
Oct.	15,531,484	9,810,027	63.2	417,150	267,456	64.1	259,557	69,198
Nov.	14,893,816	8,614,549	57.8	396,757	229,754	57.9	220,841	62,537
Dec.	14,803,783	7,726,155	52.2	381,419	205,518	53.9	207,589	65,784
Total (Year)	176,800,951	105,201,235	59.5	4,767,029	2,839,705	59.6	2,807,470	.....

TABLE II
CONSUMPTION AND STOCKS OF WASTE PAPER
(85 MANUFACTURERS)

Year and Month	Consumption of waste paper (Short tons) Rated capacity	Consumed during month	Per cent of rated capacity	Stocks of waste paper at plants, end of month [1] (short tons)
1936				
January	370,319	229,064	61.9	216,040
February	343,024	226,216	65.9	193,919
March	356,763	237,601	66.6	204,376
April	356,746	245,566	68.8	204,353
May	356,463	241,895	67.9	213,435
June	347,027	234,315	67.5	218,330
Total (6 months)	2,130,342	1,414,657	66.4	.....
1935				
January	359,167	210,812	58.7	210,520
February	322,920	211,560	65.5	214,069
March	345,236	231,584	67.1	207,987
April	347,845	217,300	62.5	214,680
May	361,312	219,767	60.8	222,519
June	334,875	213,523	63.8	230,365
Total (6 months)	2,071,355	1,304,546	63.0	.....
July	366,084	217,934	59.5	233,784
August	366,084	246,537	67.3	288,137
September	337,395	244,963	72.6	220,998
October	373,312	288,668	77.3	214,685
November	345,005	246,318	71.4	213,297
December	344,705	196,429	57.0	211,029
Total (Year)	4,203,940	2,745,395	65.3	.....
1934				
January	309,563	173,300	56.0	178,545
February	307,577	180,765	58.8	197,540
March	380,710	229,772	60.4	206,060
April	322,533	197,741	61.3	215,648
May	325,006	176,018	54.2	227,877
June	397,931	207,476	52.1	221,836
Total (6 months)	2,043,350	1,165,072	57.0	.....
July	429,348	228,313	53.2	233,048
August	348,924	208,332	59.7	232,819
September	331,857	207,766	62.6	244,467
October	362,732	230,695	63.6	231,094
November	347,053	196,461	56.6	226,941
December	346,978	173,314	49.9	223,692
Total (Year)	4,210,242	2,409,953	57.2	.....

[1] The collection of data for stocks of Waste Paper "In Transit and Unshipped Purchases," shown in previous reports, has been discontinued because the figures were regarded as unsatisfactory by the Industry.

Tariff Advantages May Be Nullified

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1935—A leading French manufacturer of cigarette paper expresses the conviction that the wage-increases forced by the wave of strikes will nullify the advantages expected from the tariff reduction on cigarette paper accorded by the recent Franco-American trade agreement.

This raises the question as to how far French exporters of other articles, on which concessions were granted by the agreement, will find it necessary to raise their prices, thereby offsetting the advantage of lower American tariff rates.

Agreement with the workmen was reached without recourse to a strike. Wage rates were raised by 12 per cent, but labor costs will be about 35 per cent higher when consideration is given the effect of the 40-hour week, holidays, and paid vacations. A further problem is being faced by factories which were operating 24 hours a day with three shifts of workmen, inasmuch as additional employes will have to be hired to keep the machines going throughout the week. Before these changes the cost of labor was 10 per cent of the production cost. Coal has already advanced by 9 francs a ton, and the cost of raw materials, rags, linen, and hemp, has been steadily advancing. It is estimated that the cost of production may rise by 25 per cent by the end of 1936. This will not be felt immediately owing to stocks on hand, but the facts are being placed before the American buyers with a view to reaching agreement on higher prices for the finished product.

Harry R. Stanford Dead

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936—Harry R. Stanford, president of the H. R. Stanford Paper Company, this city, died here last week of complications from pneumonia.

Mr. Stanford, well known in business circles here for a number of years, was a member of the Washington Board of Trade, the Congressional Country Club and the Stansbury Lodge of Masons.

A native of Boston, Mr. Stanford had been a resident of this city since childhood. He was educated in the District of Columbia public schools and the University of Maryland.

Some seventeen years ago, while manager of the D. L. Ward Paper Company, he purchased the store and changed the name to the H. R. Stanford Paper Company.

Union Bag Makes Good Report

Alexander Calder, president, in submitting to stockholders the interim statements of profits and loss of the Union Bag and Paper Corporation for the twelve months period ended June 30, 1936 says:

"This statement shows improved profits over the statement for the twelve months ending March 31, 1936, which in turn showed greater profits than those of the several next preceding twelve months' statements.

"The most profit of $278,922.74 for twelve months ending June 30, 1936, amounted to $1.91 per share on the 146,074 shares that were outstanding prior to the sale of additional stock for the purpose of financing the Savannah mill construction.

"The new Savannah plant was not in operation up to June 30, 1936, and therefore has not contributed to the earnings. The situation regarding this plant was explained in my letter of July 20, 1936, which was sent to all stockholders of this company."

STATEMENT OF PROFIT AND LOSS
Twelve Months Ending June 30th, 1936

Gross sales, less discounts, returns and allowances..		$10,065,027.34
Cost of products and manufacturing expenses, including $213,985.24 for depreciation		8,188,094.72
Manufacturing Profit		$1,876,932.62
Delivery, selling, administrative and general expenses (see note 2)		1,551,022.98
Balance		$325,909.64
Other Income:		
Interest on notes and accounts, second mortgages, etc.	$12,469.19	
Interest and management fee of controlled company, less proportion of operating loss	3,096.02	15,565.21
		$341,474.85
Other Charges:		
Interest paid		193.11
Profit before provision for Federal income and capital stock taxes.....		$341,281.74
Provision for Federal income and capital stock taxes (estimated) (see note 3).....		62,359.00
Net Profit for 12 Months Ending June 30, 1936 (see note 2)		$278,922.74

Note 1—This statement of profit and loss has been prepared in accordance with the practice of the Company with respect to interim statements. It is based partly on estimates and is subject to such adjustments as are ordinarily made at the end of our fiscal periods when the accounts are finally audited.

Note 2—After eliminating $45,000 of executive salaries deferred on the balance sheet as applicable, in the opinion of the management, to the financing and construction of the Georgia plant.

Note 3—The estimated provision for Federal income and capital stock taxes shown above does not include any amount for surtax on undistributed profits.

Butler Paper Co. Shows Rapid Growth

TULSA, Okla., July 25, 1936—A romance in Tulsa business development is revealed in the history of the Butler Paper Co. located at 219 East Archer avenue and only about six months old.

It was on January 1 that the company started operations in a small way in one room at its present location.

Since that time it has doubled its floor space twice and is at the present time seeking to acquire additional rooms. Each week has seen an increase in business volume over the previous week.

The company was organized by three Tulsa paper men who had been thoroughly trained in the business, possessed a thorough practical knowledge of the territory to be served and personally were acquainted with the contacts to be made.

E. J. Lawyer, vice president and manager, has been associated with the wholesale paper business here for 14 years.

Frank Ethridge, treasurer, has been connected with Tulsa paper houses for 21 years, and Harold Gille, office manager, has been a Tulsa paper man for the last nine years.

This combination got together last fall and decided to establish a paper distributing house with the result that the Butler Paper Company was organized.

The start was modest. In addition to the three partners the company employed two salesmen and a stenographer. It had only one line and the trading operations were limited to the confines of the city of Tulsa.

Since then additional lines have been added. One by one additional salesmen were added to the force until it now totals 17 men. The territory comprises the eastern half of Oklahoma and western Arkansas.

The company has been appointed state distributor for the Butler line of fine papers and carries such additional lines as are needed in all business establishments.

Mr. Lawyer attributes the success of the new company to a thorough knowledge of the paper business upon the part of its management gained by years of practical experience, service to customers featured in every business and sales transaction and the splendid lines of nationally known merchandise that composes its stock in trade.

R. A. Wilcox Co.'s Outing

[FROM OUR REGULAR CORRESPONDENT]

FALL RIVER, Mass., August 3, 1936—The R. A. Wilcox Company, Inc., general paper merchants, recently held their annual clambake and outing. The bake was held at Gardner's, Swansea, Mass. Afterwards the employees and guests went to George Bliss's farm in Swansea, where the party played games, including baseball, badminton, quoits and others. Towards evening, a delicious buffet supper was served by one of the girls of the office staff.

One of the highlights of the afternoon was the performance of Jim Duggan and "Andy" Wilcox, the latter 72 years old, playing baseball. "Andy" was formerly a pitcher in one of the Leagues and apparently has not lost any of his old-time form, in spite of his years.

After the game, Andy gave reminiscences of some of the great baseball players of his time, including Nap Lajoie, Cummings, and Trainor.

The day's program closed about 8:30 o'clock, after a most enjoyable time.

Government Paper Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936.—Reese & Reese has been awarded the contract for furnishing the Government Printing Office with 5,000 pounds of 22½ x 28½ bristol board at 7.25 cents per pound, bids for which were received on July 3.

Walker, Goulard Plehn Company will furnish 2,000 sheets of 24 x 36 brown cloth lined paper at $133.32 per M sheets, bids for which were received on July 1.

Barton, Duer & Koch Paper Company will furnish 4,000 pounds (2,000 sheets) of 22 x 28, No. 25 best quality, hard rolled binders board at 4.6 cents per pound, bids for which were received on June 26.

French Cigarette Paper Imports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936.—Exports of cigarette paper from the Nantes consular district to the United States amounted during the first quarter of 1936 to 3,313,000 pounds, valued at $889,000, against 2,239,000 pounds worth $594,000 during the same period in 1935; this marks an increase of 48 percent in volume of shipments. The above exports for the first three months of 1936 represent 31 percent of the total exports to the United States in 1935, or 26 percent of those in 1934.

To Be Secretary of N. E. Paper Merchants

BOSTON, Mass., August 3, 1936—The New England Paper Merchants Association announces the appointment of John Coolidge Hurd as executive secretary and assistant treasurer, effective August 17. He will succeed Frank B. Cummings, who continues to serve as treasurer.

Mr. Hurd takes up this trade association work with a broad experience in the paper trade and the graphic arts. After several years' work at Riverside Press, Cambridge, and as production manager at Yale University Press, he was associated with Storrs & Bement Company, paper merchants of Boston. Here his work for seven years was

JOHN COOLIDGE HURD

administrative, including inventory and sales promotion, and a wide acquaintance among paper manufacturers, merchants and users was built up. In recent years Mr. Hurd has devoted his time to advertising work, specializing in direct-mail campaigns.

Mr. Cummings, while retaining a close and active contact with the paper trade, will enjoy opportunities for travel. Needless to say, the New England Paper Merchants Association has accepted Mr. Cummings' resignation with the greatest regret and with sincere appreciation of the work that he has done for the association during the past three difficult years.

J. E. Linde Paper Co. To Move

The J. E. Linde Paper Company has leased almost 60,000 feet of space on one floor in the Port Authority Building, 80-90 Eighth Avenue, New York, it was announced by Charles F. Noyes Company, Inc., broker in the transaction. H. S. Quigel, real estate agent for the Port Authority Building and Colonel P. L. Gerhardt represented the owners and A. J. Tobin, real estate attorney for Julius Henry Cohen, General Counsel, was attorney for the owners. Samuel Wasserman was attorney for the tenant. The aggregate rental was reported as approximately $600,000.

The tenant will move into the new premises shortly after the first of the year at which time their present buildings at 84-90 Beekman street, which the firm has occupied since 1907, will be offered for subrental. The firm is now headed by Bertram E. Linde, son of the late J. E. Linde, and Alfred W. Kinn is chairman of the board and treasurer.

Geo. W. Millar & Co. Hold Outing

On Saturday, August 1, the office and staff of Geo. W. Millar & Co., Inc., 284 Lafayette street, New York, held their annual outing. A large commodious bus left the office of the company at 10:00 A. M. and proceeded to Karatsonyis Grove, Glenwood Landing, L. I.

On arrival a sumptuous luncheon was served, after which those present of which there were fifty, repaired to the ball field to start the festivities. Two teams were organized for the baseball game consisting of nine of the salesmen on one side, and nine of the indoor force on the other, with Judge John J. Dillon as the umpire.

As soon as Mr. Dillon took his station behind the pitcher, he was saluted with a barrage of firecrackers, which went off immediately behind him which had the effect of keeping the decisions up to par. The game was won by the salesmen with the score of 14 runs against 7 runs for the indoor men. The proverbial keg of beer was on third base as an incentive to the players to get around that far.

After the ball game a series of athletic events, for which handsome prizes were donated by the firm, got under way, the results being as follows:

—100 Yard Run—H. H. Krudop, first; L. C. Greenman, second; E. A. Dillon, third.

Obstacle Race—H. H. Krudop, first; D. L. Browning, second; L. C. Greenman, third.

Three Legged Race—R. M. Burbank and D. L. Browning, first; J. M. Smith and H. H. Krudop, second; O. Olsen and Carl Nygren, third.

440 Yard Walk—C. Hermann, first; J. Barbieri, second; M. L. Seiler, third.

Shoe Race—Schott, first; R. Gagnon, second; E. A. Dillon, third.

After the games, which lasted until 6:30 P. M., dinner was served at which three door prizes presented by Mr. J. C. Hallalieu, Sr., were awarded as follows: M. L. Seiler, first; L. McMahon, second; J. Barbieri, third.

Messrs. Dillon and Levens each provided a keg of beer which did much to enhance the pleasure of the occasion.

One of the features of the day was an imitation of Mahatma Ghandi given by George Breeze and Hebe Lloyd, and at dinner Carl Schroske entertained with a sketch in which he portrayed the part of a soubrette. He was ably assisted by Gus Risley who played the part of a traveling salesman.

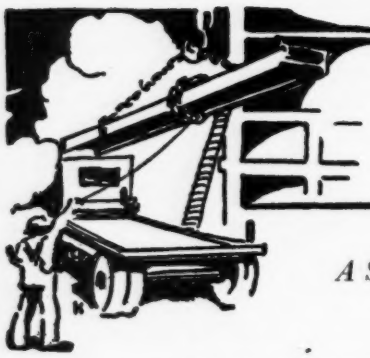
Songs by Joseph Barbieri and Charlie Strange, with A. S. Fiele at the piano, and some very fine "buck and wing" dancing by Jim Norton and L. McClenaghan, and Oliver Hamra's impersonation of a one-armed fiddler, helped to enliven the proceedings after the dinner.

The committee having the affair in charge were as follows: Charles A. Strang, Harry A. Werner, Carl Schroske, L. F. McMahon, Walter H. Martens, chairman.

Record Cut of Pulpwood at Thunder Bay

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 4, 1936—The cut of pulpwood in the Thunder Bay district probably will reach 125,000 cords this summer, a new high record, according to announcement made following a departmental survey, says a report from American Vice Consul H. T. Dwyer at Ontario. It was stated that this work, which is being carried out by a dozen major operators and a number of subcontractors, will bring about $1,250,000 of new money into the district from the sale of wood to various United States mills making products other than newsprint paper.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Carthage, N. Y.—The National Paper Products Company, manufacturer of tissue and other paper stocks, is taking bids on general contract for new addition to local mill, to be one-story, 225 x 335 feet, to be equipped for increased output. New unit is estimated to cost over $150,000, including equipment. Work on superstructure is scheduled to begin at early date.

Rapid City, S. D.—The Insul-Fibre Company, Scottsbluff, Neb., manufacturer of fibrous wood pulp insulation products, has arranged for establishment of new branch mill at Rapid City, where production will be placed under way at early date. New mill will be developed for sizable capacity. C. L. Crist is president.

Metuchen, N. J.—The Celotex Corporation, 919 North Michigan avenue, Chicago, Ill., manufacturer of wallboard, insulating board products, etc., has concluded negotiations for purchase of plant and equipment of R. J. Scott & Co., Metuchen, manufacturer of roofing specialties, bankrupt. A reported consideration of $170,000 has been given for the property. New owner will take immediate possession and occupy for a branch plant. It is understood that in addition to regular production, a portion of acquired mill will be given over to the manufacture of new insulating board specialties. Improvements will be made in property and additional equipment provided. B. G. Dahlberg is president of purchasing company.

Brooklyn, N. Y.—The Beacon Paper Box Corporation, recently organized with capital of 100 shares of stock, no par value, plans operation of local plant for the manufacture of folding paper boxes and containers of various kinds. New company is represented by Saltzman & Saltzman, 152 West Forty-second street, New York, attorneys.

Great Falls, Mont.—The Great Falls Paper Company, 200 Second street South, has approved plans for immediate rebuilding of portion of storage and distributing plant, recently destroyed by fire. It will be one-story, reported to cost close to $25,000, with equipment. Frank E. Flaherty is vice-president.

Philadelphia, Pa.—The Container Corporation of America, Inc., Nixon and Fountain streets, manufacturer of paper boxes and containers, has leased local factory building at Umbria and Le Monte streets, and will occupy for expansion. Improvements will be made in building. Company headquarters are at 111 West Washington street, Chicago, Ill.

Charleston, S. C.—The West Virginia Pulp and Paper Company, Inc., 230 Park avenue, New York, N. Y., is driving piles and beginning excavations for foundations for proposed new kraft pulp and paper mill on large tract of land at Charleston, recently referred to in these columns, and will begin superstructure for different main units at early date. Work has been started on a water reservoir for service at the mill, with rated capacity of 6,000,000 gallons. This will be connected with the Goose Creek water reservoir of the city by a 4-mile 48-inch concrete pipe line, for which award has been made by the municipality to the Lock Joint Pipe Company, Ampere, N. J.; the pipe will be reinforced with steel cylinders. New mill will cost close to $5,000,000, with machinery and will be given over primarily to production of kraft paper liners. T. A. Cook will be manager at the mill. Morton C. Tuttle Company, Park Square Building, Boston, Mass., is general contractor for project.

Greensboro, N. C.—The Dillard Paper Company has awarded general contract to John H. Bonitz, 125 Stafford place, for remodeling and improving building at 518-24 Ashe street, for company occupancy as a storage and distributing plant. Work will be placed under way at once. No estimate of cost has been announced. Randolph E. Morrissett is vice-president.

Mount Vernon, Ohio—The Shellmar Products Company, Mount Vernon, operating a paper-converting plant for manufacture of cellophane products, has taken bids on general contract for new addition for large increase in present capacity, to be one-story, 120 x 120 feet, estimated to cost over $80,000, including equipment. It is proposed to place superstructure under way at early date. Althouse & Jones, Farmers Bank Building, Mansfield, Ohio, are architects. Company headquarters are at 224 South Michicag avenue, Chicago, Ill.

New York, N. Y.—The Wilmor Paper Box Company, Inc., lately chartered with capital of $10,000, plans operation of local plant for manufacture of paper boxes and containers of various kinds. New company is represented by the Albany Service Company, 315 Broadway, New York.

York, Pa.—The Schmidt & Ault Paper Company, King's Mill Road, manufacturer of box board specialties, wrapping papers, etc., has approved plans for new addition to mill, on which superstructure will be placed under way at once. It will be one-story, located on site at King's Mill road and Penn street, designed primarily for storage and distributing service. General contract has been awarded to D. A. Smith, York. New unit is reported to cost over $40,000, including equipment.

Terre Haute, Ind.—The Wabash Fibre Box Company, Nineteenth and Buckeye streets, manufacturer of corrugated boxes and containers, has recently completed a number of improvements in plant for increased production and operating efficiency. Operations are now on a high capacity schedule, with employment of sizable working force.

Bathurst, N. B.—The Bathurst Power and Paper Company, Ltd., is advancing production of box board for folding cartons and containers, following reconditioning and improvements in its 100-ton cylinder machine used for

this purpose. It is expected to hold to a capacity schedule for the unit for a number of months to come.

New Companies

New York, N. Y.—The Seaboard Paper Stock Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by Abraham L. Freeman, 233 Broadway, New York.

Detroit, Mich.—The Auto Fibre Company has been formed with capital of $25,000, to manufacture paper goods and fibre products of various kinds. Otto Thiel, 654 Montclair avenue, Detroit, is principal incorporator and representative.

Los Angeles, Cal.—The Pacific Coast Paper Box Company, 729 Seward street, has filed notice of organization, to manufacture and deal in paper boxes and containers. A. J. Doke, 227½ North Reno street, is head.

New York, N. Y.—The Acme Waste Company, Inc., has been chartered with capital of $10,000, to deal in waste paper stocks, cardboard, etc. New company is represented by Solomon L. Suchman, 401 Broadway, New York, attorney.

Hackensack, N. J.—The New Jersey Paper Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in paper products of various kinds. George I. Marcus, 210 Main street, Hackensack, is company representative.

Lobdell Celebrates 100th Anniversary

The Lobdell Car Wheel Company, of Wilmington, Del., which has long been known as a prominent manufacturer of important paper mill equipment, is this year celebrating its one hundredth anniversary. Lobdell designed and built their first paper calender stack about 1870. In fact they exhibited a stack of rolls at the Centennial Exposition in Philadelphia in 1876 and at the Paris Exposition a few years later.

Sometime prior to 1830 Jonathan Bonney, an experienced founder and iron-worker, had come to Wilmington, Del., established an iron foundry and commenced the manufacture of car wheels, the Baltimore & Ohio Railroad having just been started. Mr. Bonney about 1830 formed a partnership with Charles Bush, under the name of Bonney & Bush, and built a new foundry and machine shop located at Second and Lombard streets, in which the production was 10 car wheels per day.

In 1832 a nephew of Mr. Bonney, George G. Lobdell Sr., being left an orphan at the age of 14, came to Wilmington from Kingston, Mass., to live with his "Uncle Bonney." He commenced his apprenticeship in the foundry and machine shop of Bonney & Bush and early displayed an aptitude for the foundry business.

In 1836 while Mr. Bonney was away from Wilmington, the foreman of the shop became ill and Mr. Bush, who was not a practical man, sent word to Mr. Bonney asking advice what to do. The word came back, "Put George in Charge", and so George G. Lobdell Sr., at 18 years of age, was from that day in charge of foundries and machine shops. In 1838 Mr. Bonney died and Mr. Lobdell assumed the former's interest in the partnership, which continued until 1859 under the firm name of Bush & Lobdell.

The business gained in prestige and expanded until 1871 when the corporate title was shortened to Lobdell Car Wheel Company which is the present firm name. In 1914 William W. Lobdell died and George G. Lobdell, Jr., succeeded him as president, the position he has so ably occupied to the present day. Mr. Lobdell, the present head of the company, was born on July 16, 1850 and educated in the schools of Wilmington. He graduated from the Sheffield Scientific School of Yale University in the year 1871. After spending several years in the foundries and shops he went abroad to study in Hanover, Germany, and the University of Berlin. He returned to assume charge of the charcoal iron furnaces the company had acquired in North Carolina and Virginia, necessary for their foundry consumption in making wheels and castings. Upon the death of his brother William W. in 1914, he assumed the office of president.

Mr. Lobdell, in addition to his office in the Lobdell Car Wheel Company, is also a valued member of the managing boards of several of Wilmington's financial and charitable institutions. Following in his father's footsteps, he is noted for his charity and welfare of his fellow-man, which is evidenced by the fact that he is president of the Board of the Minquadale Home for Aged Men and Aged Couples, founded by his father, also serving on the committees of the Home for Friendless and Destitute Children and the Home for Aged Women.

Now in his 86th year, Mr. Lobdell seldom misses a day at his office. His quiet manner and fairness have endeared him to every one of his employees, all of whom he sees on his daily rounds of the plant.

Paper Manufacturers Co. Builds

The Paper Manufacturers Company, Inc., of Philadelphia, has started actual work on the new addition to its already large plant. Foundations are being prepared for five additional stories, 103 x 65 feet. Structurally it will

START WORK ON PAPER MANUFACTURERS CO'S BUILDING

be principally of concrete with tapestry brick trimmings, abundantly illumined by windows, save where blank walls particularly have been provided for the best storage of paper. The new structure will be required principally for the expansion which has taken place in the Gummed Paper Division. New boilers are being installed and when the building is completed, the additional gumming machinery that will be installed will more than double the present capacity of the company.

Hurlbut Paper Co. Gets R. F. C. Loan

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936—During the month of June the Reconstruction Finance Corporation authorized a loan of $239,500 to the Hurlbut Paper Company of South Lee, Mass.

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BIG PROFIT GAINS BY INDUSTRY

Optimism regarding the prospects for business constantly increases. This optimism is influenced by concrete evidence that the depression is over and that substantial prosperity is rapidly developing. Last week the United States Chamber of Commerce stated that only extraneous influences outside the normal operation of business processes could prevent 1936 showing the greatest physical volume of trade since 1929. This week it is stated that the steel trade is set for the largest production in seven years. Reinforcing these statements comes a statement from the National City Bank of New York which says that a tabulation of the reports of 285 industrial corporations shows combined net profits in the first half year of approximately $554,000,000, against $341,000,000 for the same companies in the first half of 1935, an increase of 62.6 per cent. These profits are after depreciation, interest, ordinary taxes and other charges and reserves.

For the second quarter, the bank says, 230 industrial companies reported net profits of approximately $311,000,000, compared with $208,000,000 in the preceding quarter and with $179,000,000 in the second quarter of last year. The percentage gain over last year was 73.8 per cent, compared with the gain of a similar group of companies in the first quarter of only 42.3 per cent.

"Trade and industrial activity," the bank says, "continued to make a highly favorable showing during July, notwithstanding the drought which has taken a heavy toll of the nation's crops. Although the month is normally one of considerable seasonal slack in industry, manufacturing operations have been prolonged well beyond the usual time of summer decline, so that final production figures for the period are expected to make an unusually good comparison with those of previous months and of a year ago.

"Wholesale buying for the fall season, which commences in July, has been gratifying, and retail sales, though retarded in some sections by the drought and high temperatures, have continued in other sections to record large gains over last year. Summer resorts, railway and steamship bookings bear uniform testimony to the fact that people have money and are willing to spend it.

"In general, the picture presented by business is encouraging, and but for the drought and the threat of labor trouble in steel and certain other industries there would be little disposition to question optimistic forecasts for the rest of the year. As it is, the weight of opinion to date evidently has been with the optimists, for not only has buying of fall merchandise been in large volume, but the stock market has made a vigorous advance into new high grounds, apparently in anticipation of further improvement in business profits.

"In taking the confident view, business men are counting upon the momentum of urban recovery to offset whatever loss of purchasing power may eventuate in agricultural regions after government aid and adjustment of prices to reduced yields. At the same time corporate earnings statements now being published for the second quarter have made an excellent impression, while prospects of avoiding an early outbreak of industrial strife in the steel industry are now regarded hopefully.

"In the face of so great an outpouring of cash it is hardly ance must be made, of course, for the effect of soldiers' bonus payments. Between June 15 and July 27 more than a billion dollars of bonus bonds were converted into cash, and undoubtedly this "rain of checks" has boosted retail sales and been a factor in maintaining a high rate of operations in the automobile industry.

"In the face of so great a outpouring of cash it is hardly surprising that normal seasonal lines have been obliterated. Precisely to what extent business is being artificially stimulated cannot be determined, for there are many factors to be considered."

Marked gains in total net sales and a higher rate of collections on accounts receivable in June 1936 as compared with June a year ago were reported by manufacturers in the monthly joint study of the National Association of Credit Men and the Bureau of Foreign and Domestic Commerce, Department of Commerce.

Total net sales of 543 manufacturers throughout the country registered an increase of about 33 per cent in June 1936 from June 1935. Without adjustment for seasonal influences, June 1936 sales registered an increase of over 3 per cent from May of this year.

This is a new study, figures for which were collected for the first time by this Bureau in January 1936. Although the number of reporting firms has increased since January, the number is still under what is regarded as an adequate sample, particularly when the sample is broken down by subdivisions within industries. The figures are released at this time because of a widespread interest in them and in a short time the sample will be built up until it is thoroughly representative.

Total sales increased in June 1936 over the same month last year for all of 15 industry groups shown in the report. The increases ranged from 8.9 per cent for leather and its

products to over 71 per cent for iron and steel and their products. Increases in June 1936 sales over June 1935 for stone, clay and glass products, and forest products also were high, each exceeding 50 per cent.

Percentages of collections on accounts receivable submitted by 517 manufacturers were higher for June 1936 than for both June a year ago and May of this year. During June this year the manufacturers reporting collected 81.1 per cent of their accounts receivable outstanding on the first of that month as compared with 78.6 collected during June last year and 79.4 per cent collected during May of this year.

In reflecting the average experience of the reporting establishments the median percentage has been selected as the most suitable average. This average gives equal weight to all firms regardless of the volume of business done as the figure is obtained by arranging the individual collection percentages in order of size and selecting the middle item. This procedure tends to minimize fluctuations.

Thirteen of the 15 industry groups shown reported a higher average collection percentage for June 1936 than for June 1935; one group had about the same percentage for either month while the printing, publishing and allied industry group was the only one showing a lower ratio over the period. The forest products group registered the greatest relative increase in collections over this period.

The highest collection percentages were reported by the meat packing industry, the figures for each of the three months covered exceeding 100 per cent, indicating that customers of the reporting meat packers took less than 30 days on the average to pay for their purchases.

To Ask for More Specific Accounting

BROWNVILLE, N. Y., August 3, 1936—It was decided at a hearing last week before Judge John Conboy that an order will be issued for Former Trustee Ralph L. Hyde, of Syracuse, to file a more specific accounting of the affairs of the defunct Philemon Creek Paper Company during his trusteeship. The decision was made after hearing Mirza Shortt, vice-president of the Great Lakes Paper Company, relative to its claim against the local concern. No fixed time was set for the account to be filed. It is claimed by the Great Lakes Paper Stock Company that it had an agreement with Charles R. Outterson, president, and other officers of the defunct company to sell its paper stock and then take it back in case it were not used or the bill paid. It was alleged the agreement was made a short time before the local company went into bankruptcy. The local concern was operated by a group of Syracuse business men in an abandoned paper mill here for several months before financial difficulties were encountered.

Windsor Locks Canal To Reopen Sept. 1

WINDSOR LOCKS, Conn., August 4, 1936—Gerald Davis, engineer for the Connecticut Electric Light Company announced last week that the Windsor Locks canal, which was badly damaged by the March floods, would be open and in operation by September 1. This canal furnishes power to paper concerns including C. H. Dexter & Sons. The cost of the replacement of the walls and other damages is estimated at $120,000.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association)

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	.....	67.8%	.....
August	.....	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936

*July 4 (b)	82.8%	July 6 (b)	58.5%
*July 11	75.1%	July 13	69.1%
*July 18	79.8%	July 20	71.8%
*July 25	77.6%	July 27	70.3%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks: July 4, 1936	July 11, 1936	July 18, 1936	July 25, 1936
0% to 50%	91	97	85	60
51% to 100%	239	230	234	171
Total Mills Reporting	330	327	319	231

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

Paperboard Operating Actions

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

1934		1935		1935		1936	
Sept.	62%	Jan.	61%	July	59%	Jan.	61%
Oct.	63%	Feb.	67%	August	65%	Feb.	67%
Nov.	56%	March	67%	Sept.	69%	March	68%
Dec. (a)	53%	April	61%	Oct.	76%	April	70%
		May	61%	Nov.	70%	May	68%
		June	65%	Dec.	60%	June	68%

Week ending July 4, 1936—65%
Week ending July 11, 1936—53%
Week ending July 18, 1936—71%
Week ending July 25, 1936—76%

Arraign Delegation of Congressional Power

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1936.—A severe arraignment of the increasing tendency of congress to delegate legislative and judicial powers to the President and executive officials in defiance of the Constitution is contained in a 75-page report submitted last week to the American Bar Association by its special committee on administrative law.

The recommendations of the committee will go before the bar association's annual meeting for action at Boston on August 24.

The report is based on a three year study of federal administrative practices, including the rapidly expanding alphabetical agencies created by the New Deal. There is also included in the report proposals to curb the practice by members of congress, federal officials and officers of party organizations before federal agencies both in and out of Washington.

Members of the committee in their recommendations suggest the creation of a federal administrative court. Such a court, says the report, is proposed "as a logical and commendable step toward better and more efficient administration of justice in the United States and toward eradication of the evils * * * * resulting from the wholesale reposing of judicial functions in a multiplicity of federal administrative agencies."

NUMBER SIX OF A SERIES OF FAMOUS PIONEERS IN CHEMICAL HISTORY

IN 1774 Scheele, the Swedish pharmacist, while investigating the properties of manganese dioxide, accidentally produced chlorine. Not recognizing the gas as a new element, Scheele named it "dephlogisticated muriatic acid" in accordance with the "phlogiston" theory of that time. It was some years, however, before Scheele's discovery found commercial application in the form of chloride of lime or bleaching powder, and nearly one hundred and fifty years before the wide usefulness of chlorine was fully realized. Ever since the advent of liquefied chlorine gas, early in the present century, Mathieson has been a pioneer in new developments connected with the production, distribution and efficient application of chlorine and chlorine products.

One of the unique distinctions gained by Scheele was an election to the Swedish Academy of Science, an honor never accorded, before or since, to a student of pharmacy. The greatest chemical discoverer of his age, Scheele's accomplishments were the more striking in contrast with their background. An obscure apothecary, living a solitary life in a small town on the shore of a Scandinavian lake, he was constantly harassed by poverty and debt and was at times the victim of the most depressing melancholy.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry. A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Raw Materials

Beater. Jean Dayan. Fr. pat. 44,902, addition to 765,768, of June 15, 1934.—In order to be able to use the beater with equal efficiency on high and low density stock, the beater is mounted so that the inclination of the trough can be varied to suit the consistency. Means are provided for circulating a heating or cooling medium in the hood to regulate the beating temperature as desired. The roll is mounted so that it can, if desired, be reciprocated in an axial direction. The drive is designed so that the roll can be run at high speed (about 8 to 10 m. per sec.) for the production of free stock and at low speed (about 4 to 5 m. per sec.) for the production of wet stock.—A.P.-C.

Pulp Refiner. The Carborundum Co. Fr. pat. 775,800.—Means are provided for oscillating the plug in a longitudinal direction. The linings of the shell and plug are built in sections, so that the portions which are subjected to greatest wear can be easily removed and replaced without having to discard the whole of the lining.—A.P.-C.

Selection of Beaters. Papyro. Papeterie 57, 781-782 (Sept. 10, 1935).—A brief discussion of the factors to be considered in the selection of beaters.—A.P.-C.

Bleaching

Improved Methods of Bleaching of Pulp Under the Conditions of the Kondrovskii Paper Mill. Z. Gruzdeva. Tzentral Nauch.-Issledovatel Inst. Bumazhnoi Prom. Materialui 1934, no. 4:193-211; C. A. 29:7648.—The effect of various factors on the single-stage bleaching of sulphite pulp was investigated. Bleaching in the cold with solutions of various alkalinity is more extended and at the same consumption of chlorine gives a pulp of poorer whiteness than is obtained by bleaching with heating. With solutions of the same composition, the bleaching in the cold gives a pulp with better chemical properties (higher contents of alpha-cellulose, lower ash content and copper number) and higher fiber strength than the bleaching with heating. Bleaching with heating to 35-37° with solutions of equal alkalinity accelerates the bleaching process but impairs the chemical properties of the pulp. The best results are obtained with bleaching with heating to 35° with solutions containing 0.62 gram/liter calcium oxide and 32.93 grams/liter chlorine. Solutions of this alkalinity give a pulp of higher whiteness in a shorter time than the solution with 1-1.2 grams/liter calcium oxide. Heating the pulp to 18-20° before adding the bleach solution accelerates the bleaching but weakens the fiber strength and impairs the chemical properties of the pulp.—C. J. W.

The Development of the Quick or High Density Bleaching. Results of the Scientific Bleaching Studies During the Years 1921-1923. Carl G. Schwalbe. Angew Chem. 48, no. 34:557-561 (Aug. 24, 1935).—A brief review is given of the experimental results on the bleaching of tissues with concentrated bleaching liquors, on the bleaching of pulp at high density, on centrifugal bleaching and on the bleaching of pulp in sheet form. A summary of the patent literature on these subjects is included—C. J. W.

Centrifugal Method and Apparatus for Mixing Liquids and (or) Gases. Vernon W. MacIsaac. U. S. pat. 2,010,405, Aug. 6, 1935.—The invention provides a method and an apparatus for the continuous mixing of liquids and (or) gases, *e.g.*, chlorine gas with slush pulp, by introducing the two fluids in the bowl of a specially designed centrifuge. The bowl is divided into two main chambers each having appropriate water seals, so that each chamber is sealed off from the other and from the atmosphere, thus permitting of different pressures (either higher or lower than atmospheric) being maintained in the two chambers. Passages are provided in the two compartments and are designed so as to produce repeated cascading of the pulp, thus ensuring thorough mixing.—A.P.-C.

Process and Apparatus for Bleaching Pulp. Carl B. Thorne. U. S. pat. 2,013,115, Sept. 3, 1935.—Shredded pulp is discharged into a vertical cylindical tank the lower portion of which is enclosed in a tower. Some distance below the top of the tank is a stationary spider or bar retarding the downward travel of the pulp, and below the spider is rotating comb which scrapes pulp from the mass supported by the spider. Below the comb is a combined agitator and impregnator comprising a number of rotating hollow arms with holes through which the bleaching medium is introduced. At the bottom of the tank is a restricted valved opening through which the pulp is dis-

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charged into the tower. It is drawn off from the bottom of the tower by means of a worm conveyor at such a rate that it remains in the tower the length of time required to obtain the desired bleaching effect. Any excess chlorine is passed through a closed absorption system. When the feed of pulp stops, the feed of chlorine is automatically cut off.—A. P.-C.

Chlorination of Kraft Pulp. Erich Opfermann and Gustav A. Feldtmann assignors to I. G. Farbenindustrie Aktiengesellschaft. U. S. pat. 2,017,985, Oct. 22, 1935.—In the chlorination of kraft pulp by continuous addition of chlorine, decrease in the viscosity of the pulp is prevented by continuous addition of alkali in amounts such as to maintain a pH value of 6 to 9 (and preferably of 7.5 to 8.5) and leave a residual concentration of about 0.05 per cent alkali. This ensures solution of the chlorination products as fast as they are formed without any weakening action of the chlorine on the fiber.—A. P.-C.

Sizing

Paraffin in the Paper Industry. Papier-Ztg. 60, no. 63:1078-1079 (Aug. 7, 1935).—The article discusses briefly the properties of paraffin, its application in the paper industry and the machinery employed. One of its chief advantages is that paraffin-sized paper does not stretch, an exceedingly important factor for certain printing processes, for instance in the case of maps, for multicolor printing, etc.—C. J. W.

Sizing Paper with Rosin. R. Lorenz. Kunstdunger u. Leim 32:148-150, 178-181, 207-213 (1935); C. A. 29:8327.—A theoretical review is followed by a discussion of sizing processes and practical difficulties.—C. J. W.

Summary of the First All-Union Scientific-Industrial Conference on Problems of Paper Sizing. A. E. Kruze and V. M. Mudrik. Zavodskaya Lab. 14, no. 6:66-68 (1935).—C. J. W.

Theory and Practice of Sizing of Paper Stock with Rosin Size. Ya. G. Khinchin. Bumazhnaya Prom. 14, no. 5:10-21 (1935); C. A. 29:7073.—A critical discussion of the literature.—C. J. W.

Paper Sizing. Papier-Ztg. 60, no. 59:1009-1010 (July 24, 1935).—A general discussion.—C. J. W.

Rosin Yields in German Forests According to a New Method. M. Hessenland. Angew. Chem. 48, no. 40: 636-639 (Oct. 5, 1935).—Reference is made to the method of stimulating the flow of rosin from living trees by means of different chemical agents. The use of 25 per cent hydrochloric acid gave increases in yield up to 115 per cent without apparent damage to the tree. The experiments were made only on trees destined for felling within a period of 4 or 5 years. The results cannot yet be considered conclusive and further investigations are under way.—C. J. W.

Coating and Filling

Paper Coating. A. Ya. Goncharov and V. A. Istrin. Bumazhnaya Prom. 13, no. 1011:57-65 (1934); C. A. 29: 8327.—The methods and results of foreign and domestic paper coating are critically discussed.—C. J. W.

Paper Coating and Filling Composition. T. Vanderbilt Co., Inc., Fr. pat. 782,555.—A dry mixture is formed of alum, lime and calcium carbonate, the latter being in predominant proportion, while the relative amounts of alum and lime are variable.—A. P.-C.

Animal and Fish Glues. Fred Holt Jr. Paper Industry 17, 410-412 (Sept. 1935).—A brief review of their history, chemistry, manufacture, testing and grading, handling differences, and applications.—A. P.-C.

Paper Coating Process. Charles E. Fawkes and Colin M. MacKenzie assignors to Container Corp. of America. U. S. pat. 2,016,085, Oct. 1, 1935.—A relatively thin, smooth and uniform coating of lacquer, free from ridges, is applied to paper by means of an applicator roll which rotates in the direction of travel of the paper, but at a substantially lower peripheral speed, preferably between 29 per cent and 90 per cent of the speed of the paper.—A. P.-C.

Roll Coating Machine. William J. Montgomery assignor to The Champion Paper and Fibre Co. U. S. pat. 2,015,531, Sept. 24, 1935.—In a roll coating process of the type described in Bradner's U. S. pat. 1,838,358, the paper carrying roll is kept clean by providing a liquid-receiving pan into which the lower part of the roll extends and a wiper located between the pan and the portion of the roll that is in contact with the paper. The wiper consists of a blade, preferably of rubber, mounted so as to be adjustably pressed against the roll and to be readily swung out of contact with the roll when required.—A. P.-C.

Factors Affecting Retention. William R. Willets. Paper Trade J. 101, No. 13, 81-86 (Sept. 26, 1935).—A laboratory investigation on the retention of fillers (and primarily on the retention of titanium dioxide) showed that: (1) Retention is increased by (a) increasing the amount of alum up to 3 per cent (based on the weight of the fiber) after which the retention decreases slightly, (b) hydration resulting from heating, (c) increase in basis weight (most noticeable at the lower weights), (d) increasing the temperature in the sheet machine, (e) increasing dilution in the sheet machine. (2) Starch exerts a deleterious effect on retention. (3) Use of excess alum is less detrimental than use of too little alum. (4) Retention is not primarily dependent on the characteristics of an insoluble filler; the role played by particle size, etc., is small compared to the effect of such factors as alum, temperature, dilution, hydration, basis weight, etc. (5) The mechanism of retention is obscure; it is probably dependent on a combination of chemical, colloidal and mechanical factors, all of which play an important part, and all of which are closely correlated.—A. P.-C.

Drying

Drying of Pulp and Paper. II. Effects of the Principal Variables on the Rate of Air Drying. D. W. McCready. Paper Trade J. 101, No. 13, 63-66 (Sept. 26, 1935).—Data are presented that show the effects of the principal variables (thickness, density and porosity of the slab; temperature, humidity and velocity of the air stream) of air drying processes on the drying rate curve of a pulp slab. The effects of these variables are shown by the changes they produce in areas under the drying rate curves: increase in the areas correspond to decrease in the total times required to dry a slab.—A. P.-C.

Drying of Pulp and Paper. III. Mechanism of Drying of Pulp Slabs on Heated Surfaces. D. W. McCready. Paper Trade J. 101, No. 13, 66-71 (Sept. 26, 1935).—Experimental data are reported on the rate of drying of pulp slabs in contact with hot surfaces under experimental conditions similar to conditions in drum drying processes. The mechanism of drying of the slab is presented which describes the temperature, aqueous vapor pressure and water concentration gradients in the slab during drying under various drying conditions. The effects of slab thicknesses, hot surface temperature and drying air conditions on the rates of drying are presented.—A. P.-C.

Paper Machine Driers. William H. Millspaugh. Fr. pat. 778,175.—The ropes or cables used for threading the sheet through the driers are also used for driving the drier cylinders.—A. P.-C.

Steam Connection for Paper Machine Drier Cylinders. Henri Breton. Fr. pat. 784,269.—The steam supply pipe and condensate exhaust pipe are connected to an elbow fitting which is applied to the end of the hollow trunnion of the drier cylinder. Between the fitting and trunnion there is interposed a carbon disk, having a flat face in contact with the trunnion and a convex face in contact with the fitting. The bolts which hold the elbow fitting in position are provided with adjustable springs, which act as safety valves to allow steam to escape should the pressure in the cylinder exceed a given value. The steam is delivered through a stationary nozzle into a pipe which rotates in the axis of the cylinder, and this exerts a suction effect to draw back into the cylinder any steam that might be discharged with the condensate.—A. P.-C.

Drier Cylinder for Paper Machines. Harry Lord assignor to Walmsleys (Bury), Ltd. U. S. pat. 2,017,762, Oct. 15, 1935.—The condensate is maintained at a substantially negligible depth by the use of one or more buckets which pick up the condensate from the internal periphery of the cylinder during its rotation and discharge it into a fixed conduit from which it falls by gravity into an exit nozzle placed outside the cylinder. The buckets may be attached to the wall of the cylinder or may be stationary and adjustably mounted close to the internal periphery of the cylinder. On machines having a very wide range of speeds, a combination of both types of buckets may be used.—A. P.-C.

Slimes

Study of Biological Growths in the Balakhninsk Paper Mill. R. M. Pavlinova. Bumazhnaya Prom. 14, no. 5:52-64 (May, 1935); C. A. 29:7073.—The formation of slime in the production of newsprint with recirculation of water was investigated. The slime-producing fungus and bacterial growths are developed in all three units of production; defibering, sulphite pulping and paper making In the defibering department the most common microorganisms are various Bacteriaceae, *Zooglea ramigera, Fusarium Sp.?* and *Sphaerotilus natans.* In the summer, the slime formation is considerably decreased, because of the high temperature (52-68°) of the pulp and recirculation waters. In the sulphite pulping unit the formation of saprophytic growth begins in the processes of sorting and thickening, because of the high content of oxygen in the liquids. In summer and winter are chiefly developed *Fusarium aquaedictum,* yeast organisms and bacteria, with local slime aggregations consisting of *Beggiatoa leptomitisformis,* more rarely *Sphaerotilus natans* and *Zooglea ramigera.*. Among the growths appear also *Amoeba,* Ciliata, *Cligochaeta, Rotatoria* and *Nemathoda.* In the paper division predominate fungi, such as *Fusarium Sp.?* in winter and bacteria, such as *Sphaerotilus natans,* Bacteriaceae, *Beggiatoa leptomitiformis,* in summer. Among the growths were found Ciliata (*Colpidium colpoda, Euplotes patella, Leonotus Sp.? Nematoda and Oligochaeta*), *Chilodon cucullulus, Paramaecium caudatum, Votticella Sp.?* and *Oxytriema.*—C. J. W.

Experiments in Combating the Formation of Fungus Growths by Chlorinating Recirculation Waters. R. M. Pavinova. Bumazhnaya Prom. 14, no. 6:45-51 (June, 1935); C. A. 29:7073.—Experiments in chlorinating recirculation water show considerable retardation of fungus growth. A concentration of 5-10 mg. of chlorine per liter of water is recommended.—C. J. W.

Paper Properties

Effect of Vibration (Shake) on the Mechanical Strength of Paper. N. G. Potapova. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, no. 4:248-251; C. A. 29:2650.—Experiments with vibration (shake) of the forming wire at the amplitudes of 10, 15 and 20 mm. and the frequencies of 115, 177 and 215 per minute, showed that with the increased frequency and amplitude of vibration at the speed of the paper machine of 145 m./min. the tearing strength of paper is increased and its translucency is improved. The optimun conditions are at 215 vibrations per minute and 20 mm. amplitude. At the paper machine speed of 156 m./min., the effect of vibration on the quality of paper is considerably smaller. With the increased vibration the tearing strength of paper increases in the transversal direction and decreases in the longitudinal direction.—C. J. W.

Mechanical Strength of Paper in Relation to the Composition, Quality and Degree of Beating of Pulp. N. Solyus and N. Laudenbak. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, no. 4:255-263; C. A. 29:7650.—Experimental evidence shows that the tearing strength of paper produced from a mixture of chemical and mechanical pulps depends on the tearing strength of the two respective pulps. The chemical pulp in papers composed chiefly of mechanical pulp should be possibly more hard, worked up on beaters at the highest possible concentration (to 5.9 per cent) and at an adequate specific pressure (to 8.7 kg./cm.). It is possible to decrease the contents of chemical pulp in the composition of paper, without impairing its mechanical properties, by a more efficient beating of the chemical pulp or by improving the quality of mechanical pulp.—C. J. W.

Effect of the Pressure in the Wet Presses upon the Strength of the Resulting Paper. O. Mörch. Papir-J. 23, no. 13:135-137; no. 14:145-147 (July 27, Aug. 15, 1935).—An increase in pressure improves the strength properties. The period during which this pressure is exerted is an important factor. When the paper machine speed is raised, the pressure effect will be reduced, unless rolls with larger diameters and nip area are installed to compensate for this increase. A higher pressure can, to a certain extent, compensate for a shorter beating period. It results also in a higher degree of transparency and an earlier parchmentizing stage. When a paper with a high Elmendorf, bursting and tensile strength is desired, pulp with a low beating degree and high pressures in the wet presses should be employed.—C. J. W.

Deformation of Paper in Printing. Z. V. Uchastkina and V. Ya. Matveev. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, no. 4:107-115; C. A. 29:7654.—The effect of the various processing factors on the deforming properties of paper, specifically cartographic paper, was studied with 50 per cent and 100 per cent linen-rag paper, 100 per cent bleached stock paper and 100 per cent refined sulphite paper. Rag paper is least subject to deformation, while the deformation of wetted and dried sulphite paper is 17 per cent greater than that of the bleached-stock paper. Tests of the effect of degree of beating showed that the residual deformation of paper after drying is considerably greater with the sulphite paper than with the bleached stock. The shrinkage of the sulphite paper dried after wetting is constant, while that of the bleached paper increases with the greater degree of beating. The best results were obtained by progressively increased pressure and high tension of paper. The lowest deformation was obtained with 3 per cent sizing. With increased ash content the deformation of paper decreases. At 4.58 per cent ash content (10-11 per cent Kaolin on the weight of fiber) the strength of the paper is little affected, while the deformation greatly decreased, the external appearance of paper and the printing improved and the cost of paper production reduced. The

deformation is sharply increased with the increase of the temperature of the first roll from 40 to 55°. The best results were obtained at an initial temperature of about 40° with a gradual elevation of the temperature. Tests with the atmospheric humidity showed that the deformation before and after the printing with distortion of the print can be eliminated by storing the paper in the mill and printing shop at a relative humidity of 50-55 per cent. —C. J. W.

A Study of the Relation of Some Properties of Cotton Rags to the Strength and Stability of Experimental Papers Made from Them. Merle B. Shaw, George W. Bicking and Martin J. O'Lary. J. Research Natl. Bur. Standards 14, 649-665 (1935) (Research Paper No. 794). —The rags and the halfstuffs and papers made from them were analyzed. The results of physical and chemical tests on the papers before and after accelerated aging tests indicate that stable paper can be made from new rags. High acidity resulting from excessive use of alum in rosin sizing has a marked deteriorating effect on the paper. The optimum pH, as far as stability is concerned, is 5.0. At this pH the degree of sizing is satisfactory. Stability increases with decrease in rosin at the same acidity. For papers of high stability surface sizing did not materially affect the life of the paper. For papers of less stability surface sizing apparently serves as a protective surface and retards chemical deterioration. Careful processing of raw materials as well as the initial quality of the fibers is necessary for the manufacture of stable papers.—A. P.-C.

Specialties

Manufacture and Use of Metal Foils. Papier-Ztg. 60, no. 76:1348-1349; no. 77:1364; no. 78:1378 (Sept. 21, 25, 28, 1935).—A discussion of the manufacture of aluminum foils, their pasting to paper and board and their different applications in pasted and non-pasted condition. —C. W. J.

Waterproof Paper. Papier-Ztg. 60 no. 70:1232-1233 (Aug. 31, 1935).—A view of the more important methods and patents for waterproofing paper.—C. J. W.

Microscopic Examination of Vegetable Parchment and Its Substitutes. M. Marini. Ind. carta 2, no. 5: 233-235 (May, 1935).—The author discusses various microscopical methods for differentiating genuine vegetable parchment and imitation parchment paper.—C. J. W.

Drawing and Tracing Papers. Papier-Ztg. 60, no. 72:1268 (Sept. 7, 1935).—A brief description is given for the manufacture of drafting, water color, washable drawing, oiled tracing and natural tracing paper. The properties which are tested in this class of papers include furnish, sizing, tearing strength, breaking length, light fastness, resistance to washing and erasure, smoothness and in the case of tracing paper, transparency.—C. J. W.

Bitumen for Impregnating and Saturating. Fritz Hoyer. Farben-Chem. 6:331-334 (1935); C. A., 29:8327. —A discussion of methods for the manufacture of paper products, cardboard, etc., impregnated with asphalt or bitumen and uses of such products.—C. J. W.

Manufacture of Shoe Board from Scrap Leather. Papier-Ztg. 60, no. 72:1260-1261 (Sept. 7, 1935).—Leather board is made from pulped scrap leather and wood pulp (steamed groundwood pulp, sulphate pulp, paper clippings) and used in the manufacture of soles and heels in the place of leather. Directions are given for obtaining a satisfactory product. A large percentage of leather scraps causes the board to warp and wrinkle and the shrinkage can amount to 20 per cent.—C. J. W.

Drying of Pasted Posters. H. Lüers. Papier-Ztg. 60, no. 73:1280 (Sept. 11, 1935).—Directions are given for preventing the warping of posters pasted to cardboards. Warping is inevitable when the pasting is applied to one side only, hence, both sides of the board should be covered with paper of identical shrinking force. Careful drying is essential, especially if the adhesives contain large amounts of water; they should be selected with regard to paper quality and printing process employed.—C. J. W.

Corrugated Board for Wrapping Heavy Articles. E. Hallström. Papir-J. 23, no. 12:125-126 (July 11, 1935). —With a German article by P. Dressler as a basis, the author discusses the manufacture, properties and suitability of corrugated board for wrapping purposes, especially in the case of heavy goods for which the comparatively light packing material has only recently found widespread application.—C. J. W.

Production of Absorbent Paper of the American Type "Gee" for Making Laminated Insulating Boards. A. Laube and Z. Gruzdeva. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, No. 4: 178-193; C. A. 29:8326.—Of the 3 grades of absorbent paper "Gee" (General Elec. Co.) analyzed, one is 100 per cent rag stock and the other two are 100 per cent coniferous stocks with different contents of ash and alpha-cellulose and absorbing power. Of the several procedures for refining sulphite pulp, described here in detail, the following gave the best grade of absorbent paper suitable for the production of laminated electric insulation. Mild sulphite pulp, partially bleached, was treated with 5-7 per cent sodium hydroxide (on the weight of oven-dry pulp) at 90° for two hours and reworked with dilute hydrochloric acid. The pulp carefully reworked in beaters without destruction of long fibers was converted into paper at a light pressure.—C. J. W.

Strength and Stiffness Properties of White Wood Fiber Board. E. J. Muhonen. Finnish Paper and Timber J. 17, no. 12:592, 594-596 (June 30, 1935).—A complete description is given of the use of the Smith-Taber stiffness tester and comparison is made of Mullen strength, freeness and Smith-Taber readings for a sample of fiber board.—C. J. W.

Manufacture of Lace Paper. W. Hess. Papier-Ztg. 60, no. 61: 1048 (July 31, 1935).—A brief description is given of the machinery employed for the manufacture of lace paper, doilies and shelf paper. The paper used for this purpose must be tough and contain no ground wood pulp, in order to stand the tension during its travel through the embossing rolls.—C. J. W.

Carborundum or Emery Paper. W. J. Tennant assignee of Durex Corp. Brit. pat. 427,978, Nov. 3, 1933.—Paper coated with glue and an abrasive is passed between rolls to ensure that all the grains project to a distance not greater than a predetermined height above the paper backing.—A. P.-C.

Manufacture of Waterproof and Greaseproof Papers. International Latex Processes Ltd. Brit. pat. 430,953, Sept. 21, 1934.—Paper is coated with aqueous rubber latex containing a protein (*e.g.*, casein) and an accelerator, and dried. It is then coated with a lacquer (*e. g.*, nitrocellulose) in an organic solvent and dried firstly at low temperature and then at approximately 100°.—A. P.-C.

Waterproofing Paper. Gadenne-Cornaille. Fr. pat. 780,474, April 26, 1935.—Paper for packing soft soap is impregnated with a solution of an alkali silicate, then, after drying, with a layer of paraffin.—A. P.-C.

Marking Paper So As to Imitate a Watermark. J. W. Zanders. Fr. pat. 783,749.—A mark that shows up dark on a light ground by transmitted light but is invisible by reflected light is produced by printing the mark with a nearly or completely opaque pigment (*e.g.*, blanc fixe 50 per cent, titanium oxide 25 per cent, zinc oxide 20 per cent, china clay 4 per cent, ocher 0.5 per cent, ultra-marine 0.5 per cent, casein binder), and applying a coating having a sufficient covering power that the markings are invisible by reflected light.—A. P.-C.

Paper Machine Drive Regulator. Siemens-Schuckertwerke. Fr. pat. 781,923.—In order to prevent any variation in the relative angular positions of the master motor and each sectional motor with changes in load there is provided a suitable angular rotation measuring device, *e.g.*, a differential, to act on the regulator which astatically maintains constant the variation in the angle of rotation.—A. P.-C.

Packing Paper. Société Lempereur Frères. Fr. pat. 780,839, May 4, 1935.—A solid hydrocarbon is added to the paraffin used for impregnating paper so as to make the paraffin malleable and nonbrittle. Several sheets of impregnated paper are superimposed and joined to form a single sheet.—A. P.-C.

Corrugated Wrapping Paper. Adalbert Szerdahelyi. Fr. pat. 776,201.—Wrapping paper having corrugations in two or more directions is made in the usual manner by using suitably formed corrugating rolls.—A. P.-C.

Typewriter Paper of "Deferred Indelibility" and Process for Its Manufacture. John G. Callan. Fr. pat. 778,513.—Paper carries a thin even coat, such as one containing casein, starch or glue, following surface irregularities of the paper and capable or receiving ink from a typewriter type impression which is at first easily erasable but slowly penetrates through the coat to form a progressively more indelible impression.—A. P.-C.

Applying and (or) Printing a Water-Repellent Coating on Paper or Similar Material. Imperial Paper and Color Corp., assignees of A. E. V. Wiet. Brit. pat. 431,218, March 16, 1934.—Paper is coated or printed with a mixture of solubilized protein material (casein and borax), clay and coloring matter if desired, sprayed with a hardening liquid (aqueous formaldehyde solution), and dried.—A. P.-C.

Art of Ply Paper or Board Manufacture. John W. Sale assignor to Hummel-Ross Fibre Corp. U. S. pat. 2,018,382, Oct. 22, 1935.—A sheet of paper is formed on a fourdrinier machine in the usual way, and another sheet applied thereon by mounting at a suitable point of the wire a second head box from which the same or a different kind of stock is delivered on top of the already formed sheet.—A. P.-C.

Process of Forming Composition Fiber Board. Paul R. Zinser. U. S. pat. 2,016,568, Oct. 8,1935.—A composition cellulose fiber composition board is shaped by steaming for a sufficient time to render it limp and pliable, stamping to the desired form in a die heated to about 180° F., removing from the die and allowing to cool, and then again stamping with the same die at a substantially higher temperature (*e.g.*, about 280° F.).—A. P.-C.

Method of Making Boards. Edwin H. Streeter assignor to Masonite Corp. U. S. pat. 2,016,657, Oct. 10, 1935.—Preformed damp sheets containing about 50 per cent to 60 per cent moisture and produced by any known process are united by pressing at about 150 lbs. per sq. in. in a press having platens heated to about 350° F., until the moisture content is reduced to about 5 per cent.—A. P.-C.

Process of Making Insulation Board. Alfred G. Brown and Stephen E. McPartlin. U. S. pat. 2,012,805, Aug. 27, 1935.—Straw is shredded into its component fibers without wetting, and the fibrous mass is heated to remove any residual moisture. The fibers are then passed through a heated conveyor in which they are sprayed with a coating material such as molten asphalt, and the mass is thoroughly mixed while passing through the conveyor to coat the fibers with asphalt. The material is then formed into sheets or slabs by subjecting to pressure, first intermittently and then progressively.—A. P.-C.

Laminated Paper Board. John D. Carter assignor to Philadelphia Quartz Co. U. S. pat. 2,015,359, Sept. 24, 1935.—In paper board built up of several plies joined together with an alkaline adhesive (*e.g.*, sodium silicate), the deleterious effects of the alkali are prevented by treating the plies, either before or after applying the adhesive with solutions of salts producing anions which form neutral salts with sodium, *e.g.*, zinc sulphate or chlorides of iron, barium, calcium and magnesium.—A. P.-C.

Machine for Making Corrugated Paper Board. George W. Swift, Jr., assignor to George W. Swift Jr., Inc. U. S. pat. 2,018,240, Oct. 22, 1935.—In making single-face corrugated board, fluid pressure is used for holding the corrugated sheet against the corrugating roll as it passes from the adhesive applying roll to the pressure roll which applies the facing sheet.—A. P.-C.

Decorated Composition Fiber Board. Paul R. Zinser assignor to Woodall Industries, Inc. U. S. pat. 2,016,567, Oct. 8, 1935.—A decorative effect (such as wood grain) is applied to a thermoplastic composition fiber board (such as KB board) by pressing the heated board into contact with a metal die formed by electrodeposition on the surface of the wood of which the grain is to be reproduced. Before pressing, a suitable varnish coat is applied to the surface of the board to prevent "bleeding" of the asphalt or similar constituent of the board. After pressing a suitable filler (preferably colored) is applied so as to collect in the depression formed in the board, and the latter is again pressed in contact with a smooth plate to compress and spread the elevations to partly overlie the filler.—A. P.-C.

Building Boards, Tiles. Etc. Teikichi Satow. U. S. pat. 2,007,585, July 9. 1935.—Comminuted hog fuel is used with a quick-setting vegetable protein binding base such as soybean meal, so that the wood fibers extend in different directions and resist warping.—A. P.-C.

Playing Cards. Leon Roon. U. S. pat. 2,012,288, Aug. 27, 1935.—The face of the card is coated with a nonlustrous transparent film of good slipping character such as a nonlustrous cellulose ester lacquer.—A.P.-C.

Stencil Sheet Assembly. William G. D. Orr assignor to A. B. Dick Co. U. S. pat. 2,018,501, Oct. 22, 1935.—A cushion sheet of cellophane which has been coated with a color-bearing wax is inserted between the type-impressible sheet and the backing sheet.—A.P.-C.

Shingle of the Wide-Spaced Type. Clarence R. Eckert assignor to The Barrett Co. U. S. pat. 2,013,556, Sept. 3, 1935.—A shingle of the wide-spaced type comprises a flexible fibrous base coated with bituminous material. A second bituminous coating is applied, except on the marginal areas at the sides which extend from the upper end of the shingle to the line of overlapping of the superimposed course of shingles, and grit surfacing is applied over the second coating. The combined thickness of the second bituminous coating and grit surfacing is equal to the combined thickness of the felt and first bituminous coating.—A.P.-C.

Building Elements. Harold L. Levin assignor to The Patent and Licensing Corp. U. S. pats. 2,013,351 and 2,013,352, Sept. 3, 1935.—*No. 2,103,351*—A siding element of asphaltic composition having a body portion and tabs spaced by narrow cut-outs extending from the body portion is coated with an asphaltic layer and surfaced with granular material covering substantially the entire upper surface

of the element. An additional layer of asphaltic coating surfaced with coarse granular material of a different color from the first granular surfacing is applied over the major portion of the exposed face of the tabs from the butt edges to a line parallel to and below the upper ends of the cut-outs, and extends around the exposed edges of the tabs and extends also in tongues upwardly from the upper ends of the cut-outs. *No. 2,013,352*—An asphalt saturated and coated fibrous base shingle strip is given an additional layer of coating and surfacing material on only the exposed surface and exposed side and butt edges, and also on narrow vertically elongated areas of the body portion extending upwardly from the upper extremities of the tab-producing slots.—A. P.-C.

Building Material and Method of Making the Same. Lester Kirschbraun assignor to The Patent and Licensing Corp. U. S. pat. 2,013,349, Sept. 3, 1935.—A thick loosely matted bat of fibres is reinforced by anchoring to a web of paper or thin felt, and is impregnated with at least 500 per cent by weight of asphalt having a melting-point of at least 170°F.—A. P.-C.

Means for Dipping Asphalt Shingles. Ernest Goodwin assignor to Brantford Roofing Co., Ltd. U. S. pat. 2,015,929, Oct. 1, 1935.—The main object of the invention resides in immersing the shingles or strips to a uniform depth irrespective of the quantity of hot asphalt in the dipping tank. To this end a float member is supported on the body of molten asphalt and is provided with adjustable guides (comprising thin supporting members extending across an opening in the float) for limiting the depth of immersion of the shingles.—A. P.-C.

Building Covering and Method of Manufacturing Same. Robert S. Maclean, assignor to Mastic Asphalt Corp. U. S. pat. 2,018,216, Oct. 22, 1935.—Building covering units are formed by applying a coating of hot asphalt to composition board and a coating of surfacing grit over the asphalt, pressing the grit into the asphalt while the latter is still warm, pressing joint lines into the surface with a hot die, and pressing differently colored grits into the joint lines to simulate the appearance of grit and mortor lines.—A. P.-C.

Base Felt for Impregnating. George A. Richter assignor to Brown Co. U. S. pat. 2,013,841, Sept. 10, 1935.—Rag stock is beaten until the fibers have been suitably shortened. After thickening to about 10 per cent consistency it is boiled for 1 to 3 hours with a 1 to 3 per cent caustic soda solution or is treated at or below atmospheric temperature for 30 mins. to 2 hours with a 5 to 8 per cent caustic soda solution so as to destroy hydrated cellulose and increase the freeness. The pulp is washed and felted on a paper machine.—A. P.-C.

Building Material and Method of and Apparatus for Making Same. Alfred Anderson assignor to The Patent and Licensing Corp. U. S. pat. 2,013,332, Sept. 3, 1935.—A base felt is coated with a waterproof adhesive. Granules of different colors are applied from separate sources to form adjacent bands of different colors and are embedded in the coating. The excess of the differently colored granules is separated from the excess composed of mixed colors; the excess granules of each of the different colors is returned to the appropriate supply, while in the excess granules of mixed colors the different-colored granules are separated from each other.—A. P.-C.

Decorative Sheet Material. Ralph G. Jackson. U. S. pat. 2,011,149, Aug. 13, 1935.—A sheet of absorbent nonwoven fibrous material such as paper of substantially even density and thickness throughout has decorative coloring matter in printed designs extending substantially through its thickness and tinting the fibrous particles but not closing the voids between the particles, and the sheet is saturated substantially throughout its thickness with a transparent saturant such as a white rosin composition which can be rendered fluid by heating and solidifies on cooling. Such a material is suitable for use as a floor covering.—A. P.-C.

Difficultly Flammable Cigarette Wrappers. Stewart E. Seaman. U. S. pat. 2,013,508, Sept. 3, 1935.—A film such as one of regenerated cellulose containing barium sulphide is immersed in a zinc sulphate solution to form insoluble zinc sulphide and the resulting film is attached to paper used to encircle the tobacco portion of a cigarette by an adhesive.—A. P.-C.

Finishing of Artificial Leather. Milton O. Schur and Benjamin G. Hoos assignors to Brown Co. U. S. pat. 2,015,441, Sept. 24, 1935.—Artificial leather comprising a rubber-impregnated felted fibrous base is given a finishing treatment comprising applying to the surface of the leather a skin comprising a primary coat containing latex, glue and glycerine and a secondary coat containing glue and glycerine while restricting the skin to a thickness ranging from about 6 to 18 grams per sq. ft., and tanning the glue content of the coat.—A. P.-C.

Verdol Paper. Johan Spahn. U. S. pat. 2,007,883, July 9, 1935.—A verdol paper, in band or analogous form, for controlling textile machinery and formed with usual perforations for guidance of the paper and for its control action, comprises a body of paper to the surface of which is united a coating of relatively thin metal foil, acting both to strengthen the paper and to fix it against substantial alteration of dimensions.—A. P.-C.

Manufacture of Transparent Paper. William M. Driesen assignor to S. D. Warren Co. U. S. pat. 2,018,638, Oct. 22, 1935.—Paper made of highly hydrated fiber is impregnated with a solution of nitrocellulose in a mixture of a volatile solvent and a nonvolatile solvent, and the volatile solvent is removed by evaporation.—A. P.-C.

Paper Product and Method of Making Same. Alexander V. Alm assignor to Dennison Manufacturing Co. U. S. pat. 2,018,244, Oct. 22, 1935.—Soft, absorbent material, possessing absorptiveness and high wet strength and suitable for towelling, etc., is obtained by treating a thin, light weight tissue paper (preferably made from purified wood pulp) with a toughening or converting agent (suitably a vulcanizing reagent such as sulphuric acid or zinc chloride solution) to render the alpha-cellulose fibers gelatinous and hence mutually adhesive and cohesive. Excess of the reagent is removed or neutralized as soon as the superficial layer of the fibers has been suitably modified.—A. P.-C.

Separating Sheet Material. Herbert L. Thompson assignor to Nashua River Paper Co. U. S. pat. 2,017,449, Oct. 15, 1935.—"Separating sheets" or "slip sheets" for placing between sheets having a tacky or adhesive surface are rendered non-adhesive and easily separable by coating with a solution of sodium silicate, with or without the addition of glycerine or hydrolyzed sugar to render the coating more flexible, and dried.—A. P.-C.

Finishing of Artificial Leather. Milton O. Schur and Benjamin G. Hoos assignors to Brown Co. U. S. pat. 2,015,440, Sept. 24, 1935.—A non-aqueous printing ink is sprayed on a transfer paper to form a film thereon. Latex and glue mixture is sprayed on the film to deposit a skin thereon. The combined film and skin are dried, the glue is insolubilized (*e.g.*, with formaldehyde) and the rubber is vulcanized. The skin and film are applied by means of heat and pressure on to a rubber-impregnated fibrous base and the backing transfer paper is removed—A. P.-C.

Composite Sheet Material. Alexander V. Alm assignor to Dennison Manufacturing Co. U. S. pat. 2,014,460, Oct. 17, 1935.—A sheet of crepe paper is united to a backing sheet by means of an intermediate layer of adhesive elastic rubber.—A. P.-C.

Process of Saturating Fibrous Conduits. Stuart P. Miller assignor to The Barrett Co. U. S. pats. 2,012,968, 2,012,969 and 2,012,970, Sept. 3, 1935.—*No. 2,012,968*—Fibrous conduits are immersed in a body of saturant that is maintained under vacuum, are raised into the evacuated space above the body of saturant, and are again immersed in the saturant. *No. 2, 012,969*—Impregnation by means of a liquid saturant heated to a high temperature and maintained under partial vacuum is carried out as a continuous operation. *No. 2,012,970*—Fibrous conduits are dried by heating in vacuum, sprayed in vacuum with a hot liquid saturant; the spraying is interrupted while still maintaining the vacuum and is resumed again.—A. P.-C.

Process of Saturating Fibrous Conduits. George Emberg assignor to The Barrett Co. U. S. pat. 2,012,961, Sept. 3, 1935.—The conduits are dried by placing in a suitable container and heating under a vacuum of from 17 to 29 inches. Molten waterproofing saturant (preferably coal tar pitch made by a vacuum distillation process) is progressively introduced while maintaining the vacuum until the conduits are completely immersed; vacuum is relieved and the conduits may be allowed to soak a further 45 min. or longer. The impregnated conduits show an absorption of less than 4 per cent when immersed in distilled water for 48 hrs. at 77° F.—A. P.-C.

Vulcanized Fiber. James H. Young assignor to E. I. du Pont de Nemours and Co. U. S. pat. 2,015,132, Oct. 24, 1935.—Chemical wood pulp of low alpha-cellulose content and high viscosity is treated with a mercerizing caustic soda solution, washed, beaten until the fibers have been cut to the required length, formed into sheets of paper, and vulcanized with zinc chloride solution.—A. P.-C.

Method of Making Molded Articles from Wood Paste. A. Clark Haight assignor to The A. S. Boyle Co. U. S. pat. 2,016,329, Oct. 8, 1935.—A moldable material is formed by mixing a water-soluble material such as sodium chloride, preferably in fine granular form, with "wood paste" consisting of finely divided wood or other cellulosic material and a solution of nitro-cellulose or other cellulose ester, resins, oils and a volatile solvent. The mixture is placed in a porous mold saturated with water and subjected to the action of water until the material has set so that the mold can be removed. The molded object is hardened by permitting it to remain in water until substantially all the volatile solvent has been displaced by the water and the latter is then dried out.—A. P.-C.

Analytical and Testing

Determination of the Methoxy Groups in Wood. K. Storch and I. Wenzel. Angew. Chem. 48, no. 30:513-514 (July 27, 1935).—The authors modify the method of Ender (Angew. Chem. 47:227, 257 (1934)), in which the methoxy groups are separated by means of sulphuric acid and the methylated alcohol is determined by converting it into methyl nitride. The latter is allowed to react with potassium iodide and the liberated iodine is treated with standard sodium thio-sulphate solution. The methoxy values of various woods obtained by this method agree well with those determined according to the Zeisel method. —C. J. W.

Testing Methods for Evaluation of Unbleached Chemical Pulp. David Johansson. Paper Trade J. 101, No. 13, 101-104 (Sept. 26, 1935).—A survey is given of the methods for determination of the cooking degree and strength properties used in the chief pulp-producing and pulp-consuming countries in Europe. Particular regard is paid to methods used in Sweden and their relation to other common methods. Bibliography of 17 references. —A. P.-C.

Nomographs for Rigidity, Stiffness and Softness of Paper. D. S. Davis. Paper Industry 17, 409 (Sept. 1935).—Alignment charts are given for facilitating the calculation of rigidity, rigidity factor, stiffness and softness of paper by means of the formulas of Clark (*Paper Trade J.* 100, No. 13, 41-44 (March 28, 1935)).

The Testing of Newsprint with Respect to Printing Quality. Herbert H. Grantham and William Ure. Paper Trade J. 101, No. 12, 29-33 (Sept. 19, 1935).—The castor oil flotation test and oil penetration test both measure the same thing *viz.*, the penetration of the liquid through the sheet when there is—excess of that liquid on one side of the paper. The castor oil flotation test does not indicate variations in calendering and gives contradictory evidence when applied to changes in composition. The oil drop absorption test (which consists in measuring the time taken for complete absorption of a small drop of oil of definite weight) shows promise as a means of predicting the printing behavior of newsprint; it is very sensitive to variations in calendering and to changes in composition of the sheet, when comparable samples are examined.—A. P.-C.

Testing Fiber Building Boards and Pulp. Edwin C. Jahn. Paper Trade J. 101, No. 12, 34-39 (Sept. 19, 1935). A summary of some of the testing methods described in the literature (with bibliography of 27 references), together with a discussion of a few of the tests carried out on fiber boards at the Idaho School of Forestry.—A. P.-C.

A Study of Penetration of Papers by Various Oils and Varnishes. Gerard A. Albert. Paper Trade J. 101, No. 11, 31-5 (Sept. 12, 1935).—The penetration of absorbent papers by phenolic resin varnish, castor oil, sperm oil and motor oils was studied by means of the Westinghouse tester. The results are tabulated and given in graphic form, and discussed.—A. P.-C.

Technique of the Microscopical Analysis of Papers Containing Wool. L. Vidal and P. Goldsmid. Mon. Papeterie Francaise 72, 355-356 (Aug. 1, 1935).—The previously described method (*Paper Trade J.* 101, No. 11, 36 (Sept. 12, 1935)) has been improved by replacing bleaching powder by permanganate for bleaching the wool. Suitably, 50 cc. of decinormal potassium permanganate and 4 to 5 drops of concentrated sulphuric acid are used for 0.5 g. of paper.—A. P.-C.

Color Analysis and Specification. Joseph Razek. Paper Trade J. 101, No. 13, 91-95 (Sept. 26, 1935).—A general outline is given of the spectrophoto metric method of color analysis, followed by the method of reduction to trilinear co-ordinates in accordance with the procedure suggested by the International Committee on illumination in 1931. Calculation and significance of dominant wave length, colorimetric purity and relative brightness are discussed and a sample calculation is given. In the case of white samples, a further calculation from the trilinear coordinates makes possible the calculation of "whiteness" in accordance with Judd's formula.—A. P.-C.

Surface Tension Measurements and Their Applications. A. Boutaric. Industrie Chimique 22, 85-91 (1935); Papier 38, 729-737 (Aug. 1935).—A review.—A. P.-C.

To Represent Magnus Chemical Co.

The Magnus Chemical Company, Garwood, N. J., manufacturers of industrial soaps, cleaning materials, sulfonated oils, emulsifying agents and metal working lubricants, announces the appointment of Gordon M. Darling to represent them in part of California.

Fred Slater has been appointed to represent the Magnus products in the states of Oregon and Washington.

The Effect of pH on the Rate of Chlorine Consumption in Bleaching*

By W. O. Hisey[1] and C. M. Koon[2]

Abstract

The present paper gives the results obtained on bleaching sulphite pulp in buffered solutions of fixed pH.

Electrometric titrations of bleaching liquors indicated that the pH of chlorine containing solutions was of great importance in determining the activity of the solution as an oxidizing agent. Throughout the pH range, the lower the pH, the more active the solution, as measured by the oxidation potential. Likewise, it was indicated that, for equivalent concentration of available chlorine, the composition of the liquor, with reference to the content of oxidizing forms of chlorine, namely hypochlorite ion, hypochlorous acid, and molecular chlorine, depends on the pH.

A series of bleaches, buffered to maintain constant pH conditions, was made, and the rate of consumption of chlorine by the pulp was found to be roughly dependent on the oxidation potential, a more rapid reaction being obtained under acid conditions.

The strongest pulp from this series of bleaches was obtained at pH 1.7, and pulps bleached at higher pH values were progressively weaker, roughly in proportion to the pH.

The best color, for consumption of a constant amount of chlorine, was obtained under conditions of moderate alkalinity (pH 10.8). Second stage bleaches with calcium hypochlorite, resulted in pulps of a high degree of whiteness from the samples which had been given the preliminary bleach under acid conditions (pH 0.8 to pH 3.7).

One per cent caustic soda solubility of the pulps varied widely over the pH range studied, being low under acid conditions, maximum at neutrality, and low under alkaline conditions.

An evaluation of the effect of varying hydrogen ion concentration on the reactions involved in the bleaching of pulps is of practical as well as of theoretical importance. The glass electrode is a tool eminently suited for research on this problem and recent developments in methods of using elemental chlorine in bleaching operations have indicated its practical value. The present paper gives the results obtained from a preliminary survey of the subject, a study which involved making a series of bleaches under controlled pH conditions, and the determination of the resulting rates of the consumption of available chlorine, together with an evaluation of the pulps.

The effect of the hydrogen ion concentration on the composition of solutions of chlorine in water, under acid conditions, is indicated by the equilibrium constant of the reaction

$$Cl_2 + H_2O \rightleftarrows HCl + HOCl$$

which is given by Jakowkin *(1)* as follows

$$\frac{[H^+]\ [Cl^-]\ [HOCl]}{[Cl_2]} = 4.48 \times 10^{-4}$$

Davidson *(2)* gives the dissociation constant for hypochlorous acid as

$$\frac{[H^+]\ [OCl^-]}{[HOCl]} = 3.7 \times 10^{-8}$$

With the aid of these two equations it is possible to estimate the approximate theoretical composition of a solution of chlorine in water, for varying pH values. This has been done and the values thus obtained are shown in Table I. It will be noted that in extremely acid solutions (pH 1), elemental chlorine predominates, with a relatively small proportion of hypochlorous acid being present. At moderate acidity (pH 4 to 5) the elemental chlorine has become of minor importance, and nearly all of the available chlorine appears in the form of hypochlorous acid. Above pH 5, hypochlorite ion begins to be of importance and, at neutrality, accounts for approximately one-third of the available chlorine present, the remainder of the available chlorine being in the form of hypochlorous acid. Such marked changes in composition would indicate an important effect attributable to pH in the reactions of chlorine with pulp under varying pH conditions.

Clibbens and Ridge *(3)* studied the effect of pH on the rate of degradation of cotton by chlorine solutions and found the maximum time-rate of degradation at approximate neutrality. The minimum rate of degradation was found under acid conditions, whereas alkaline conditions resulted in moderate degradation rates.

Gallart *(4)* and Chapin *(5)* both studied the influence of hydrogen ion concentration on the rate of decomposition of hypochlorites into chlorates, and both found such decomposition to be at its maximum rate when the pH was 6.7, at which point the proportion of HOCl and OCl^- is 2 to 1. Chapin *(5)* covered a wide range of pH values in his work and found the minimum rate of decomposition under very acid conditions, (approximately pH 1) and at pH 13.1. Between these values, the rate of decomposition was maximum at pH 6.7. This work also showed an increased rate at pH values higher than pH 13. These results show a striking similarity to those obtained by Clibbens and Ridge *(3)*, and indicate that the same factors which influence the decomposition of chlorine solutions to chlorates may also be of importance in the degradation of cellulose in bleaching reactions.

Taylor, Maass and Hibbert *(6)* have reported a study of the rates of reactions between hypochlorous acid and certain unsaturated compounds (allyl alcohol and dipropenyl glycol) in which they found a marked increase in the rate of the reaction brought about by hydrochloric acid, or by hydrogen and chloride ions. This effect, which

TABLE I
DISTRIBUTION OF CHLORINE IN AQUEOUS SOLUTION AS A FUNCTION OF pH

	Molar Concentrations *			
pH	Cl_2	Cl^-	HOCl	OCl^-
1	.081	.019	.019	.....
2	.052	.048	.048	.....
3	.016	.084	.0839	.000003
4	.0021	.0979	.0978	.000036
5	.00022	.0998	.0994	.00037
6	.00002	.0999	.0962	.0037
7	.000002	.1000	.0630	.037

* Based on a solution initially 0.1 molar with respect to chlorine.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y.
An abstract of a thesis presented to the New York State College of Forestry in partial fulfillment of requirements for the degree of Master of Science.

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they attributed to catalysis, was such that the catalytic effect of the combined hydrogen and chloride ions was proportional to the product of the concentrations of these two ions.

The reactions between hypochlorous acid and isolated lignin were studied by Hibbert and Austin *(7)*. They found that approximately 37 per cent of the hypochlorous acid added was consumed in oxidation, when no catalyst was added, but that in fairly acid solution, only about 15 per cent was consumed in oxidation, whereas in alkaline solution, 65 to 75 per cent was consumed in oxidation.

Bleaching experiments under alkaline conditions were reported by Yorston *(8)* and by Ross, Mitchell and Yorston *(9)*. Yorston compared the results of unbuffered bleaching with alkaline bleaching, using magnesium oxide to maintain the bleach at approximately pH 9. He found that the rate of the reaction was such that the quantity of bleach consumed varied directly with the logarithm of the time. The pulp bleached under alkaline conditions was of better color and viscosity than that bleached under unbuffered conditions. Ross, Mitchell and Yorston *(9)* obtained similar results, using lime water to maintain the alkaline conditions during bleaching.

The results obtained by the investigators mentioned, indicate that several important effects will be found to depend upon the hydrogen ion concentration. Apparently, not only is the rate of the bleaching reaction influenced, but also the course of the several individual reactions which together make up the total bleaching reaction. In addition, quite wide variations in the pulp quality are to be expected to depend on the changes in hydrogen ion concentration.

The oxidation potential is an important measure of the intensity of the oxidizing characteristics of an oxidation-reduction system *(14)*. The fundamental equation connecting the oxidation potential and the effective concentration of the reactants and products of a reaction, such as $aA + bB = gG + hH$, is as follows *(15)*

$$E = E_o - \frac{0.0591}{n} \log \frac{[G^g]\ [H^h]}{[A^a]\ [B^b]}$$

where

E = actual electromotive force, in volts.
Eo = normal oxidation potential
n = valence change between the two states of oxidation in the reaction.
G and H = molar concentrations of products.
g and h = number of moles of products resulting from the reaction.
A and B = molar concentrations of reactants.
a and b = number of moles of reactants entering reaction.

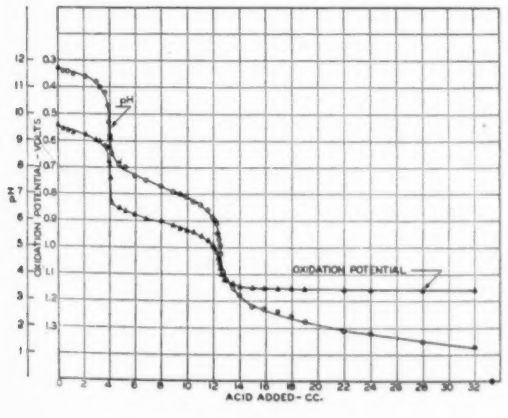

FIG. 1

Oxidation potentials and pH values resulting from titration of 200 cc. of calcium hypochlorite, containing 2.997 grams of available chlorine per liter, with normal hydrochloric acid. Oxidation potentials referred to saturated calomel electrode.

The "normal" oxidation potential of a system (Eo in the above equation) is defined as the E. M. F. generated when the effective concentrations of the ions in the higher and lower states of oxidation, are equal, and a high normal oxidation potential indicates a high degree of activity as characteristic of the ion in the high valence state *(14)*. Normal oxidation potentials of three of the chlorine systems involved in bleaching are as follows *(16)*:

		Normal Oxidation Potential (Volts)
(1)	$H^+ + HOCl + 2E^- = Cl^- + H_2O$	+ 1.50
(2)	$\frac{1}{2}Cl_2 + E^- = Cl^-$	+ 1.359
(3)	$ClO^- + H_2O + 2E^- = Cl^- + 2OH^-$	+ 0.94

The above normal potentials are referred to the normal hydrogen electrode as zero.

In this paper, all oxidation potentials have been referred to the saturated calomel electrode, as zero. The e. m. f. of the saturated calomel electrode, with respect to the normal hydrogen electrode is 0.246 volt, and all experimentally reported values must be corrected by the addition of this value to bring them into conformity with values based on the normal hydrogen electrode.

The oxidation potentials of the chlorine systems used in bleaching would appear to be of considerable interest and importance, and the determination of oxidation potentials was made an integral part of the study. Such potentials were determined in all cases, in addition to the hydrogen ion concentration.

Experimental

Electrometric Titrations of Chlorine Solutions

The first step in the experimental work consisted of the electrometric titrations of two chlorine solutions. A solution of calcium hypochlorite was titrated with hydrochloric acid, thus progressively neutralizing the base present, the titration being continued well into the acid range. Likewise a solution of chlorine in water was titrated with a solution of caustic soda. In both cases, hydrogen ion concentration and also oxidation potentials were determined over the range covered.

Hydrogen ion concentrations were determined with a Leeds and Northrup glass electrode, using substantially the same circuit as that described by Voigtman and Rowland *(10)*. The galvanometer used was a Leeds and Northrup, Type R, with a sensitivity of 0.001 microamperes. With this apparatus, determinations within 0.1 pH unit could be readily made. Standard buffer solutions *(11) (12) (13)* were prepared and the electrode calibrated frequently, to insure the accuracy of the data.

Oxidation potentials were determined with a bright platinum wire, using the saturated calomel half cell for reference.

Fig. 1 shows the results obtained during the titration of 200 cc. of a solution of calcium hypochlorite containing 2.997 grams of available chlorine per liter, with normal hydrochloric acid. Fig. 2 shows the results obtained during the titration of 200 cc. of a solution of chlorine water, containing 3.125 grams of available chlorine per liter, with normal sodium hydroxide solution. In both cases, an endpoint was indicated at approximately pH 9.5 on the alkaline side, and at approximately pH 4.5 on the acid side. The results indicate the presence of excess alkali above pH 9.5 and the absence of any free alkali below this point. It is to be noted that the oxidation potentials tended to be unstable in the endpoint regions. This was especially the case when acidifying calcium hypochlorite, and several minutes were required for the readings to become stable, in the region of the endpoint at pH 9.5. Apparently a rather slow rearrangement was taking place, as the excess alkali was removed.

The region between pH 9.5 and pH 4.5 is one in which

hypochlorous acid, and hypochlorite ion are both present, the proportions of the two being determined by the pH. At pH 4.5 the hypochlorite disappears and in the acid range below this point, molecular chlorine, hypochlorous acid and chloride ions are present. These results confirm, qualitatively at least, the results of the calculations given in Table I.

There is a striking correspondence between the changes in pH and in the oxidation potential, during the electrometric titrations, as shown in Figs. 1 and 2. In Fig. 3, the pH has been plotted against the oxidation potential, and it will be noted that between pH 5 and pH 11, the relationship for chlorine solutions of the same concentrations, is approximately linear, within the experimental error. Also, in this range, the results obtained during the acidification of calcium hypochlorite check very closely with those obtained during the addition of sodium hydroxide to chlorine water.

A consideration of the formula for oxidation potentials, given above, indicates the mechanism which results in the close relationship between pH and oxidation potential, as shown. Hypochlorous acid and hypochlorite ion are present in the range of pH between pH 5 and pH 9. The formulae for the oxidation potentials of systems involving these ions are as follows:

$$(1)\quad E = Eo - \frac{.0591}{2} \log \frac{[Cl^-]\ [H_2O]}{[H^+]\ [HOCl]}$$

$$(2)\quad E = Eo - \frac{.0591}{2} \log \frac{[Cl^-]\ [OH^-]}{[ClO^-]\ [H_2O]}$$

In each of these formulae, the concentration of hydrogen ions enter into the determination of the oxidation potential, and in each case, the increase in the hydrogen ion concentration tends to cause a corresponding increase in the oxidation potential. Thus, in the absence of any oxidation-reaction or change in concentration, the oxidation potential of a chlorine water system, between pH 5 and pH 9, depends directly on the concentration of hydrogen ions, the more acid the solution, the higher being the resulting oxidation potential. The experimental results in this range are in fair agreement with the calculated results, as follows:

Change in oxidation potential on acidifying calcium hypochlorite with hydrochloric acid—between pH 5 and pH 9	
Calculated	0.306 volts
Experimental	0.298 volts
Change in oxidation potential, on adding caustic soda to chlorine water, between pH 5 and pH 9	
Calculated	0.329 volts
Experimental	0.300 volts

In the range above pH 11, the relationship between the pH and the oxidation potential departs from linearity, and

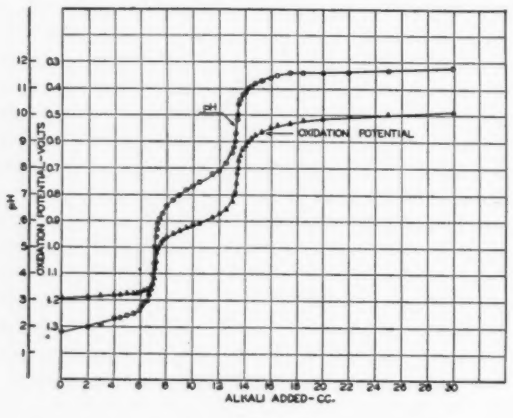

FIG. 2
Oxidation potentials and pH values resulting from titration of 200 cc. of chlorine water, containing 3.125 grams of available chlorine per liter, with normal sodium hydroxide. Oxidation potentials referred to saturated calomel electrode.

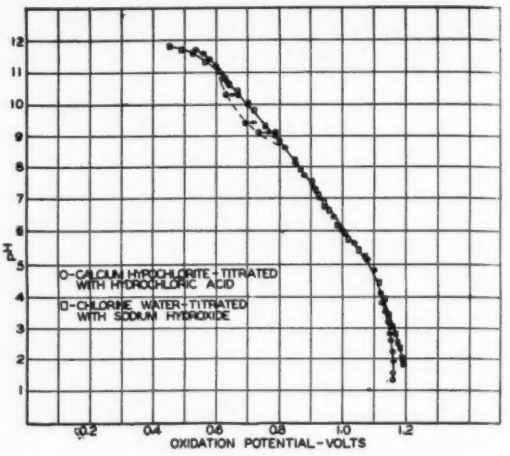
O-CALCIUM HYPOCHLORITE + TITRATED WITH HYDROCHLORIC ACID
D-CHLORINE WATER + TITRATED WITH SODIUM HYDROXIDE
pH
OXIDATION POTENTIAL-VOLTS

FIG. 3
Relationship between oxidation potential and pH during titration of calcium hypochlorite, and chlorine water.

the curves for the calcium hydroxide-calcium hypochlorite system and the sodium hydroxide—sodium hypochlorite system depart from each other. These results, however, are not precise, and are probably due to the inaccuracy of the glass electrode in this range.

The departure of the pH—oxidation potential curve from linearity, below pH 5, however, is of a different character, and indicates an alteration in the molar relationships in the solution. Below pH 5, the ions present include chloride ions, hypochlorous acid, and molecular chlorine. The applicable formulae for oxidation potentials in systems containing these ions, are as follows:

$$(3)\quad E = Eo - \frac{.0591}{2} \log \frac{[Cl^-]}{[Cl_2]}$$

$$(1)\quad E = Eo - \frac{.0591}{2} \log \frac{[Cl^-]\ [H_2O]}{[H^+]\ [HOCl]}$$

Consideration of these formulae indicates the mechanism producing a less than proportionate change in the oxidation potential, with changing pH, in the acid range below pH5. In the first place, the oxidation potential, as influenced by the hypochlorous acid component, tends to increase in direct proportion with the hydrogen ion concentration. (See Formula 1.) In the range below pH 5, however, an increase in the hydrogen ion concentration is accompanied by an increase in the molecular chlorine content and at the expense of the chloride ion and hypochlorous acid present, as evidenced by the dissociation formula for hypochlorous acid, namely:

$$\frac{[H^+]\ [Cl^-]\ [HOCl]}{[Cl_2]} = 4.48 \times 10^{-4} \qquad (1)$$

Therefore, an increase in the hydrogen ion concentration will result in a decrease in the chloride ion concentration and an increase in the molecular chlorine concentration. This change results in a tendency for the oxidation potential to increase, but at a rate less rapid than that proportionate to the hydrogen ion concentration as evidenced by Formula 3. Thus, the linear increase in the oxidation potential which would be produced if only hypochlorous acid and chloride ion were present in the solution, is modified by the presence of the molecular chlorine so that the net resultant change in the oxidation potential is less than proportional to the change in pH. This corresponds with the experimental results. Likewise, an increase in the chloride ion concentration, at a given pH, results in a tendency to decrease the oxidation potential. This corresponds to the results obtained in the calcium hypochlorite

TABLE II
SCHEDULE OF BLEACHING EXPERIMENTS AND BUFFERING AGENTS

pH Unbuffered	Buffering Agents Used	Molar Concentrations
	No Buffer used.	
13	Calcium Hydroxide	0.4
12.5	Potassium Acetate	0.25
	Potassium Hydroxide	1.57
10.8	Potassium Carbonate, adjusted with Potassium Hydroxide	0.25
9.7	Potassium Carbonate	0.25
9.5	Potassium Carbonate	0.19
8.6	Boric Acid, adjusted with Sodium Hydroxide	0.25
7.8	Boric Acid, adjusted with Sodium Hydroxide	0.10
6.8	Phosphoric Acid, adjusted with Sodium Hydroxide	0.25
4.9	Acetic Acid	0.25
	Sodium Hydroxide	0.135
3.7	Acetic Acid	0.25
1.7	Phosphoric Acid	0.15
0.8	Hydrochloric Acid	0.10

—hydrochloric acid titration, and checks with the lower oxidation potentials as experimentally determined.

These preliminary experiments indicate that the hydrogen ion concentration is a factor of major importance in the determination of both the oxidation potential and the composition of a chlorine containing system.

The oxidation potential is characteristic of the intensity of the oxidizing power of an oxidizing solution, and as such, should have a strong influence on the rate of the reactions taking place between the bleaching solution and the reducing substances of the pulp. Likewise, the changes in composition of the bleach liquor, as brought about by changing hydrogen ion concentration, would be expected to produce changes in the *course* of the reactions involved. Only the first of these two phases was investigated in the work here reported.

Influence of pH on Rate of Consumption of Available Chlorine

In order to determine the influence of the hydrogen ion concentration on the rate at which chlorine was consumed by the pulp, a series of bleaching experiments were made under conditions of fixed pH. The bleaching apparatus used was similar to that described by Kress and Davis *(17)*. In every case, the charge consisted of 800 grams of pulp (oven-dry basis) and the consistency was maintained at 3 per cent (oven-dry basis). The pulp used was a hard, unbleached Swedish sulphite (K. B. Korsnaes). Bleachability determinations on this pulp indicated a consumption of 10.3 per cent of chlorine, as hypochlorite, in order to obtain a reasonably white product, and all bleaches were made using this quantity of available chlorine.

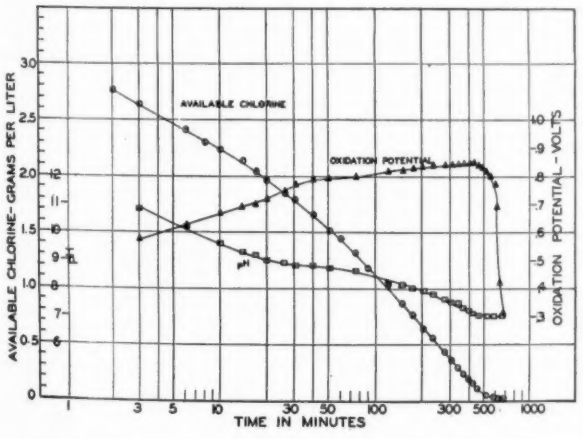

Fig. 4
The rate of consumption of available chlorine during unbuffered bleaching with calcium hypochlorite, and corresponding pH and oxidation potentials during the course of the reaction.

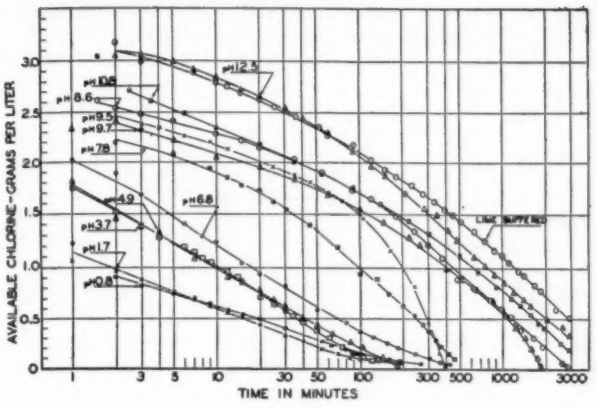

Fig. 5
Rates of consumption of available chlorine during bleaches buffered at various pH values.

In all cases, the pulp was soaked in water over night, then transferred to the appropriate buffer solution, and disintegrated. The pulp was then transferred to the bleacher, and made up to volume, with water. The chlorine was added in the form of calcium hypochlorite solution, containing approximately 30 grams of available chlorine per liter. Calcium hypochlorite was chosen for this work, since the effect of the calcium ion on the accuracy of the glass electrode was felt to be less serious than would have been the case if sodium base liquor had been used.

Oxidation potentials and also pH values were determined periodically during all bleaches. In addition, the concentration of the available chlorine was determined, at frequent intervals. Samples of the liquor were withdrawn, using a wire screen to prevent entrance of pulp into the pipette, introduced into a solution of potassium iodide containing a large excess of acetic acid, and the liberated iodine was titrated with standardized sodium thiosulphate solution.

Table II includes a list of the bleaching experiments performed, the pH values under which they were run, and the buffering agents used to attain those pH values. The molar concentrations given refer to the total volume in the bleaching apparatus, the original concentration of available Cl_2 being 3.17 grams per liter in every case. During the lime buffered bleach, it was found necessary to add more calcium hydroxide, as the bleach progressed, to maintain the pre-determined pH, and likewise in the cases of bleaches at pH values 10.8, 9.7, 8.6 and 6.8 it was necessary to add more base, during the progress of the reaction, to maintain the pH value desired.

The results obtained during the unbuffered bleach with calcium hypochlorite are shown in Fig. 4. It will be noted that the pH during the consumption of the chlorine

TABLE III
TIME OF HALF-LIFE OF AVAILABLE CHLORINE UNDER VARIOUS pH CONDITIONS

pH During Bleaching	Range of Oxidation [1] Potential During Half-Life of Available Chlorine	Time of Half-Life [2] of Available Chlorine, Minutes
Unbuffered	540 to 785	43
Lime Buffered	394 to 428	360
12.5	346 to 362	240
10.8	574 to 599	140
9.7	638 to 658	80
9.5	711 to 740	75
8.6	730 to 843	130
7.8	776 to 827	26
6.8	902	5
4.9	1042	1.5
3.7	1114	1.5
1.7	1190	0.7
0.8	1140	0.8

[1] Oxidation potentials referred to saturated calomel electrode.
[2] Time of half-life estimated from curves.

dropped from an initial value of pH 11.3 to a final value of pH 7.0. In response to the increasing hydrogen ion concentration produced during the course of the bleaching reaction, the oxidation potential rose from an inital value of 0.540 volts to a maximum of 0.845 volts, when approximately 95 per cent of the available chlorine had been consumed. Thereafter, in response to the declining concentration of available chlorine, the oxidation potential decreased. It is to be noted that the end-point of the bleaching reaction, as indicated by the maximum rate of decrease of the oxidation potential, occurred somewhat before the endpoint as indicated by the titration of the bleaching liquors for available chlorine. This behavior was found to be characteristic, and occurred in all bleaching experiments.

The varying rates at which the available chlorine was consumed by the pulp, under different pH conditions, are shown in Fig. 5. A logarithmic scale had been used for time, in order to produce more distinct differentiation among the curves. All bleaching experiments were started at a temperature of 20 to 22 deg. C., but since a constant temperature room was not available, the temperature increased to 24 to 26 deg. C. before the completion of the bleach. In the cases of bleaches at pH 8.6, 9.7, 10.8 and the lime buffered bleach, the temperatures rose to 30 to 32 deg. C., thus producing some distortion of the curves for these bleaches.

The curves of Fig. 5 indicate that, in general, the rate of consumption of the available chlorine increases with decreasing pH. Several notable exceptions will be seen on the curve, however. The bleach at pH 8.6 was out of line, in that the consumption of chlorine was at a slower rate than was noted at either the next higher or the next lower pH values. (pH 9.7 and pH 7.8 respectively.) No reasonable explanation of this behavior is apparent. The bleach at pH 9.5, after approximately half of the available chlorine had been used, proceeded at an abnormally rapid rate. In this case, a certain amount of copper contamination appeared in the pulp, and as a result the pulp acquired a greenish cast. This contamination may have resulted in a catalysis of the reaction. The copper contamination was not noted in previous bleaches, and the bleacher was painted with "Tornesite" after this bleach, and no further trouble of this type was experienced. It is also to be noted that the consumption of available chlorine at pH 0.8 was more rapid during the start of the reaction, and less rapid during the latter part of the reaction than was the case during the bleach at pH 1.7. This action may be due to experimental error, but it also might be attributed to the differing proportion of molecular chlorine and hypochlorous acid at these pH values.

In no case, during this series of bleaching experiments, was the pH allowed to vary more than 0.2 pH unit, with the exception of the bleach at pH 9.5 (which was started at pH 9.7 and gave a final pH of 9.3) and the bleach at pH 12.5 (which was started at pH 12.7 and dropped to pH 12.2). The oxidation potentials, in all bleaches run under acid conditions, tended to decrease slightly during the course of the reaction, until the available chlorine had nearly disappeared, and to drop rapidly during the consumption of the final 0.10 gram per liter of available chlorine. In the case of bleaches under alkaline conditions, the oxidation potential tended to increase slightly during the consumption of the first half to two-thirds of the available chlorine, thereafter decreasing slightly until nearly all of the available chlorine was consumed, finally dropping sharply at the end of the reaction.

The time required for the consumption of half of the available chlorine used was taken as an approximate measure of the rate of the reaction, and has been plotted, in Fig. 6 against the average oxidation potential for the first half of the bleach. The results shown indicate a considerable degree of relationship between the oxidation potential and the rate at which chlorine is consumed by the pulp. The relationship is not precise, however, and the results indicate that other factors may be of importance.

At the conclusion of the bleaching experiments, the pulps were washed well with water, pressed, and stored in air tight containers.

Since a calcium base hypochlorite liquor was used in all experiments, it was inevitable that the resulting pulps should contain appreciable amounts of ash. In the case of the pulp buffered with hydrated lime, a light wash with 0.1 N hydrochloric acid was used to remove a large part of the ash. Other pulps were not treated to remove the inorganic constituents, but ash determination were made on all pulps. The ash content of the pulps, after the bleaching treatment, are given in Table IV.

Strength Characteristics of Pulps from Bleaches at Varying pH Values

All pulps were tested for strength characteristics, using the standard Niagara beater with the controlled bed-plate for the beating tests. The comparative maximum strength characteristics of all pulps in the series are shown in Figs. 7, 8 and 9. All results are reported on the basis of a 100-pound ream, 25x40—500. The comparative strength results show marked variation with the pH conditions of bleaching. The maximum bursting strength, tearing resistance and folding endurance were obtained at pH 1.7, the tear and fold at this pH being somewhat higher than

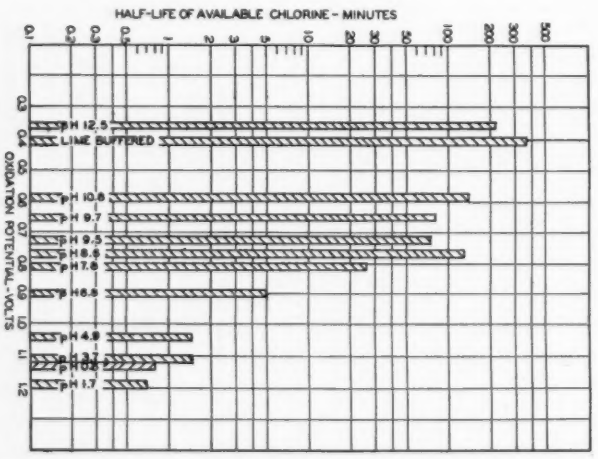

FIG. 6
Time of half-life of available chlorine during buffered bleaches, as related to oxidation potential and pH of the bleaching system.

TABLE IV
ASH CONTENT OF PULPS BLEACHED UNDER VARYING pH CONDITIONS

pH During Bleaching	Per Cent of Ash in Pulp* Per cent
Lime Buffered	2.3
12.5	1.1
10.8	3.6
9.7	5.1
9.5	2.8
8.6	0.8
7.8	1.1
6.8	6.6
4.9	0.3
1.7	0.3

* Ash contents of samples in which the mineral constituent appeared as calcium oxide after ignition are given as equivalent weight of calcium carbonate.

was found for the unbleached pulp. The strength characteristics of the pulp bleached at pH 0.8 were somewhat lower than the maximum. Between pH 1.7 and pH 10.8, the strength characteristics decreased with considerable regularity, indicating a progressively more severe attack on the fiber, as the pH was increased.

These strength results are indicative only, and are doubtless influenced, to a considerable degree by the ash content of the pulps. Although the variations in ash content may explain some of the irregularities in the results, the marked drop in strength is too great to be due to ash content alone, and the ash contents do not correlate with the strength characteristics. The pulp bleached at pH 6.8, for example, had the maximum ash content, 6.6 per cent, whereas the pulp bleached at pH 8.6, containing only 0.8 per cent of ash, was of much lower strength. It is, therefore, to be concluded that the strength characteristics of the bleached pulp, under conditions of constant chlorine consumption, are strongly influenced by the pH of the bleaching solution, higher strengths resulting from acid than from alkaline bleaching. The reliability of this conclusion is further attested by the very close correspondence between the folding endurance and bursting strength of the pulp bleached at pH 6.8, with the pulp bleached under unbuffered conditions, the final pH of which was 7.0.

The results of Clibbens and Ridge *(3)*, who concluded that the buffering agent used had little effect on the rate of reaction of chlorine with cellulose, create a pre-supposition that the presence of the buffering agents used had but little influence on the results. These same investigators also found that the maximum rate of consumption of chlorine by cotton cellulose was obtained at pH 7, the rate being markedly less at either higher or lower pH values. It would appear, then, that the results obtained from the presently reported work might well be greatly influenced by the duration of contact of the pulp with the bleaching solution.

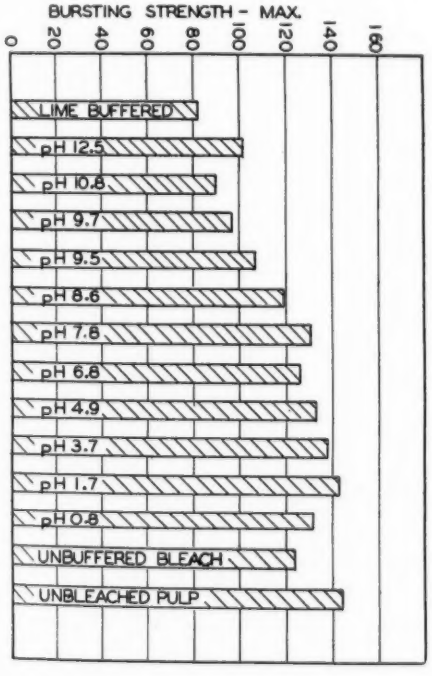

FIG. 7
Maximum bursting strengths of pulps bleached under various pH conditions. Bursting strength data calculated to pounds per 100 pound basis weight, ream size 25x40—500.

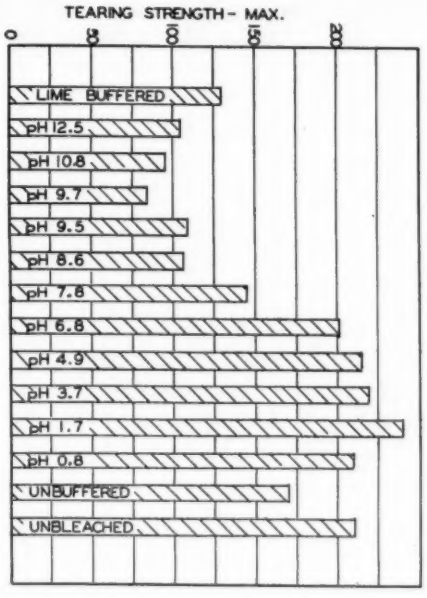

FIG. 8
Maximum tearing strengths of pulps bleached under various pH conditions. Tearing strength data calculated to grams per 100 pound basis weight, ream size 25x40—500.

The results herein reported might well be consistent with the results reported by Clibbens and Ridge *(3)*, provided contact time were taken into account. Further work along these lines is being carried out.

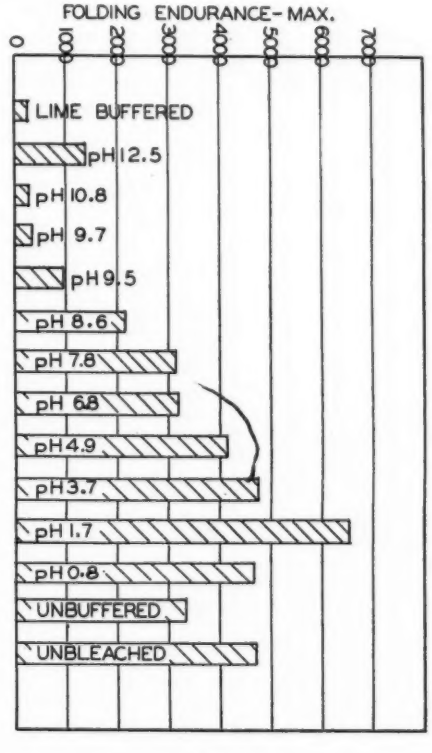

FIG. 9
Maximum folding endurance of pulps bleached under various pH conditions. Data calculated to double folds per 100 pound basis weight, ream size 25x40—500.

Color Characteristics of Pulps Bleached Under Varying pH Conditions

The pulps resulting from the bleaching experiments, were of widely varying degrees of whiteness. It was felt that a determination of the amount of chlorine which would be consumed by these pulps, during a second stage hypochlorite bleach, would be informative. All pulps were subjected to a second stage bleach, with calcium hypochlorite, for a period of 4 hours, and the quantity of chlorine consumed was determined. In addition, all samples were tested for degree of whiteness, using the General Electric reflectance meter. The results are shown in Table V.

The results given in this table indicate that of all the pulps obtained from the bleaching experiments under controlled pH conditions, the sample bleached at pH 10.8 was of the brightest color. As the pH was reduced from this point, the whiteness of the pulps became less. It is to be noted that the loss in reflectance between pH 10.8 and pH 6.8, the pH characteristic of the final stage of most commercial hypochlorite bleaching, was a full 10 points. The pulps which had been subjected to the acid treatment were very poor in color, the two pulps from the bleaches at the lowest pH being, in fact, of poorer color than the original unbleached pulp.

After the light second stage hypochlorite bleach, the pulp which had been given the first stage treatment at pH 9.7 had the best color. The pulps from the acid first stage bleaches, however, were a close second. The copper contaminated pulp from the bleach at pH 9.5, was distinctly out of line, both in color and quantity of chlorine consumed.

As a result of these experiments, a tentative conclusion might be drawn that alkaline bleaching results in whiter pulps than normal single stage bleaching with calcium hypochlorite, but that conditions more conducive to high white color, together with good strength, are found in acid conditions during the first stage of the bleach and a final light hypochlorite bleach. These results are confirmed by commercial experience with methods of using chlorine in the first stage, and calcium hypochlorite in the second stage of bleaching.

One Per Cent Caustic Soda Solubility of Pulps Bleached Under Varying pH Conditions

All pulps were subjected to one per cent caustic soda solubility tests, with the results shown in Table VI. As would be anticipated, the alkaline bleaches were characterized by very low soda solubilities. The extremely high soda solubility of the pulp bleached at pH 6.8 is somewhat surprising. This result, however, is in correspondence with results reported by Clibbens and Ridge *(3)*, since these investigators found that the rate of degradation was very fast at pH 7.0, and much slower at both pH 9.0 and 4.6. The very low soda solubility results obtained for pulps

TABLE V
CHLORINE CONSUMED ON SECOND STAGE BLEACHING, AND REFLECTANCE OF RESULTING PULPS

First Stage—with Controlled pH		Second Stage Bleach with Calcium Hypochlorite	
pH	Reflectance of Pulp	Per Cent Chlorine Consumed	Reflectance of Pulp
Unbleached	52.5	...	...
Unbuffered Bleach	60.1	1.0	70.8
Lime Buffered Bleach	63.6	0.9	65.7
12.5	71.6	0.7	73.4
10.8	73.4	0.8	72.6
9.7	70.1	0.8	75.3
9.5	60.5	3.9	64.3
8.6	63.9	0.9	72.6
7.8	62.8	1.5	67.9
6.8	63.9	0.8	73.6
4.9	55.1	1.0	71.9
3.7	53.2	1.2	73.5
1.7	50.5	1.4	74.3
0.8	47.6	1.5	74.2

TABLE VI
ONE PER CENT CAUSTIC SODA SOLUBILITY OF PULPS BLEACHED UNDER VARYING pH CONDITIONS

pH During Bleaching	One Per Cent Alkali Solubility, Per Cent
Unbleached Pulp	13.8
Unbuffered Bleach	13.5
Lime Buffered Bleach	9.1
12.5	8.7
10.8	12.0
9.7	15.3
9.5	20.5
8.6	13.3
7.8	17.6
6.8	23.0
4.9	14.1
3.7	14.0
1.7	12.7
0.8	12.8

bleached in the acid range indicate that the fiber has been but slight attacked under these conditions. This is in accord with the evidence of the high strength results obtained in this range.

Conclusions

The work herein reported has indicated that the hydrogen ion concentration of bleaching liquors is a very important variable in the bleaching of wood pulp. It has been shown that in the range pH 5 to pH 9, the activity (as indicated by oxidation potentials) of hypochlorite solutions of the same concentrations of available chlorine, are definitely dependent on the hydrogen ion concentration, the lower the pH of the liquor, the greater the activity. In this range also hypochlorite ion, and hypochlorous acid are co-existent, the composition of the liquor with respect to these two forms of chlorine being dependent on the hydrogen ion concentration. Below pH 5, the hyprochlorite ion disappears, and the available chlorine is present in the form of molecular chlorine and hypochlorous acid. The more acid the solution, the greater proportion of the available chlorine present in the form of molecular chlorine. In the acid range the activity of the solution, as measured by the oxidation potential, increases with increasing acidity, but not in direct proportion.

The rate at which available chlorine is consumed by pulp, up to its chlorine requirements for bleaching, appears to be a function of the oxidation potential of the bleaching solution, which in turn is dependent on the pH (under conditions of equivalent concentrations). The data produced on this point are not precise and it is probable that the variable composition of the bleach liquor, with respect to its chlorine content, also has a modifying effect on the rate of usage of available chlorine. In any case, the reaction proceeds with extreme rapidity under acid conditions, and more slowly as the pH increases, being very slow under alkaline conditions.

The strongest pulp was obtained at pH 1.7, the weakest pulps were obtained in the range of excess alkali in the bleach liquor (pH 9.7 and above), and the strength declined with considerable regularity on passing from acid to alkaline conditions. The strength data are distorted somewhat by the presence of ash in the pulps, but it appears at least qualitatively correct to conclude that the strongest pulps are obtained by treatment under acid conditions. This result may be due simply to the longer time of contact necessary to consume the chlorine, under alkaline conditions, but it is possible that differing specific rates of attack on the fibers are also to be found under the differing pH conditions studied. Further work is being carried on to determine this point.

The degree of degradation of the fibers, as indicated by the one per cent caustic soda solubility of the pulp, is irregular with respect to both pH, and oxidation potential. In the acid range below pH 4.9, the caustic soda solubility was low, and of the same degree of magnitude as that of the unbleached pulp. This would appear to coincide with the absence of hypochlorite ion from the solution. At neu-

trality, the caustic soda solubility of the pulp was extremely high, indicating a severe chemical attack on the fiber. In the range pH 6.8 to pH 8.6, the caustic soda solubility decreased sharply, and at pH 8.6, was again of the same order as that characteristic of the unbleached pulp. These results are strikingly similar to those obtained by Clibbens and Ridge *(3)* who found the maximum rate of degradation of cellulose at neutrality, the rate of degradation being very much less under slightly alkaline conditions (pH 9) and likewise under slightly acid conditions (PH 4.6). The high caustic soda solubility of the pulp bleached at pH 9.5 may or may not be significant, since this pulp was contaminated with copper from the bleacher used. The low caustic soda solubility of the pulps bleached under alkaline conditions (above pH 9.7) was probably due to the solubility of those constituents of the pulp which had been attacked during the bleaching, in the alkaline liquors used. Unfortunately, no yield determinations were run on these pulps, so the extent of such solvent action was not determined.

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Dispersion of A Coating Mix*

By George A. Oechsle[1]

Abstract

This paper has to do with the subject of dispersing mills. We have collected data on the Lancaster disperser, the Eppenbach colloid mill and the Crane color Jordan.

The Lancaster Disperser

We will consider the "A 4 Size Series 40" as this is the only size unit that is made at present. This unit has a capacity of 150 gallons per hour, and it requires 5½ h.p. operating at 3,600 r.p.m. The motor is direct connected to the disperser through a flanged coupling. Coating material processed through the disperser and screened through a 150 mesh sieve produce tailings which were rather negligible. This unit has an overall length of 31 inches, width of 9 inches and a height of 17½ inches.

The Lancaster disperser is similar to a colloid mill. There are two rotors that rotate in a cylinder having a diameter of 4 inches and they throw the coating color introduced at the bottom of these rotors outwards against the stator blades. The coating color is pressed into a header on the top of the machine in a tangential screen and it is then passed to the short screen device. A particular feature of the Lancaster disperser is that no foam is produced. The capacity of the machine can be varied considerably, but it has been found that by by-passing half of the capacity, which is 300 gallons per hour, back to the mixing tank, that a constant flow of 150 gallons per hour works out to the best arrangement.

The use of the Lancaster disperser produces a smooth, more homogeneous coating color, which brushes out quite easily. The finished coated paper has a smoother and denser coating. The glare is not changed, and the brightness is reduced about .5 point. On deep color coatings a saving of dyestuff and casein can be made. Another mill reports a saving of 14.3 per cent on an expensive dyestuff and 4 per cent on a cheaper color. In spite of these savings the coated paper appears to be richer and the coating color covering the sheet with a better spread.

The following table lists some of the advantages as to results that can be obtained through the use of the Lancaster disperser:

	ITEM "A"					
	Use of Lancaster Mixer	Brightness	Wax Test	Glarimeter	Bekk Smoothness	K. & N. Ink Receptivity
No. 1 Coated Stock	With	....	7	35.5	300	Better
	Without	....	7	36.2	255	.....
No. 2 Coated Stock	With	81	5	45	895	Slightly Better
	Without	81.8	5—	45	575	.....
No. 3 Coated Stock	With	84.3	4	45	630	Slightly Better
	Without	83.5	4	45	530	.....
No. 4 Coated Stock	With	....	6+	42.8	518	Slightly Better
	Without	....	7	43.6	460	.....
No. 5 Coated Stock	With	75.6	6	40	425	Better
	Without	75.9	6	39	325	.....

One coating mill advises us with its regular method of mixing that they find about 1/16 to ⅛ inch of tailings in the dirt pan in the bottom of the rotospray after a batch of color is screened, and that with the Lancaster disperser as mentioned above very little, if any tailings can be found, and from tests made by their laboratory the Lancaster disperser produces a color with a much smaller particle size than is possible to get with the regular method of mixing and screening, and they further tell us that the paper coating requires less pressure on the calender stacks to obtain a given gloss.

The Lancaster disperser operates on principles of ex-

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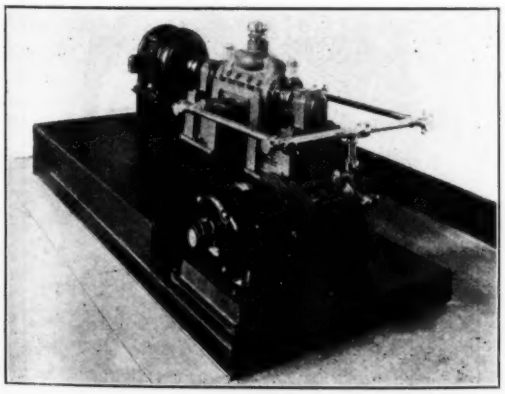
* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 20, 1936.

[1] Member TAPPI Superintendent of Coating Mill, Dill & Collins, Inc., Philadelphia, Pa.



LANCASTER DISPERSER

treme turbulence and velocity. It is radically different from colloid mills in that there are no close working clearances. There are two opposed dispersing zones, right hand and left hand mounted on the rotating element, operating in a 4 inch bore with removable liners. The coating color is introduced at the inner ends of the dispersing zones, and is forced outward through abrupt changes of direction and with high turbulence to the end passages and then upwards, the two streams joining tangentially in the upper chamber. There is a central tube open to this chamber, providing recirculation through the dispersing zones.

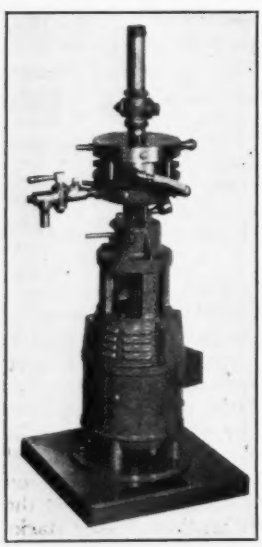
There is a considerable reduction in viscosity one coating mill reporting a reduction from 100 seconds to 70 seconds, another from 32 to 24. In another mill a viscosity range of from 10 to 20 seconds on a particular formula is now uniformly held to 14 to 16 seconds. This has resulted in considerably improved smoothness, freer flowing, and possible increase in solid concentration.

Eppenbach Colloid Mill

The Eppenbach colloid mill is made in several sizes, but for coating color work we usually find a standard size "D" unit used. This unit handles from 20 to 500 gallons per hour and requires a 5 hp. motor, operating at 3480 r.p.m. It has an overall length of 17 inches, a width of 17 inches and a height of 50 inches, and it weighs about 310 pounds. The unit is of a vertical type and it operates at high speed so as to obtain great turbulence under pressure. The grinding chamber includes a standard method of rotors and stators. The rotors are equipped with vanes for directing the coating against the side walls of the stators, with the clearances set to grind and crush hard particles and reduce the coating color to the smallest possible particle size. The unit includes a bypass arrangement, and one of its advantages is that it can be easily cleaned. The coating is fed from the top through a feed hopper and is discharged from the side of the colloid mill.

Another feature of this unit is the water cooling jacket that keeps the colloid mill at the proper temperature where coatings have a tendency to heat up the color.

Coating mills have reported a decided saving in dyestuffs through the use of this mill due to the fact that it produces greater dispersion, thereby increasing greater color strength. The mill is fully adjustable, which permits the operator to set the rotor to a specified gap that will not permit any material to go through above a certain size, and this gives positive control of the color, and, as mentioned above, the mill has the advantage of producing a finished product at room temperature, which, no doubt, is of great importance to some coating mills. The mill is silent and free of vibration, and it does not need an experienced operator. The motor is direct connected to the colloid mill—the motor setting on a base with the colloid mill mounted directly above it. This unit is quite compact and requires but little space. Its ease of operation is an important feature. The only damage that can be effected in the operation of the mill is to screw the adjustment gap down too tight while the mill is in operation, which will tend to either slow the motor down or stall it, and possibly blow a fuse. Otherwise, an inexperienced operator cannot damage the mill.



Eppenbach Colloid Mill

An important feature about this mill is that it can be cleaned and adjusted while in operation.

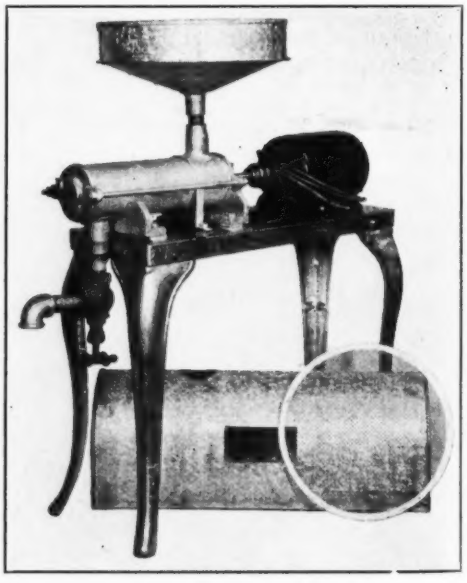
Crane Color Jordan

This unit has not been sufficiently demonstrated for a complete analysis as to its efficiency of operation and construction. However, we are pleased to report that the present jordan that is in operation is built in one size. It handles 250 gallons per hour, requiring ½ hp. motor, operating at 750 r.p.m. It has an overall height of 36 inches, length of 28 inches and width at 10 inches, and weighs 150 pounds. One mill reports that they use it between agitators and screens and it makes for a very uniform mix and saves about 10% of pulp colors. Another mill reports that they use it between screen and coating machine color boxes, thereby eliminating spots and pin holes, and at the same time reducing viscosity. Another mill reports that they use it between screens and coating machine color boxes and it produces for them a uniformity of mix, a reduction of particle size, particularly in the use of calcium carbonate. I have a report from one mill saying that they use it for general purposes and that it eliminates the use of a ball mill. One coating mill reports that they like the results that they obtain from the use of the Crane color jordan particularly on deep dolors and also on copper, silver and gold coatings. One mill is using it in the mixing of casein with very good results, and on their regular colors it runs 60 per cent solids. This mill is of the horizontal type. It is Cadmium plated inside and equipped with a galvanized outside hood. The color is fed to the jordan through a funnel at the top and is discharged at the end.

The inner construction of the jordan is of the standard rotor and stator type.

Inner Construction

The motor is direct connected through a coupling to the jordan.



The Crane Color Jordan

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 1, 1936

CIGARETTE PAPER

R. J. Reynolds Tobacco Co., *American Farmer,* Havre, 133 cs.

WALL BOARD

Treetex Corp., *Hallaren,* Horneborg, 4,034 bdls.

WALL PAPER

F. J. Emmerich, *Laconia,* Liverpool, 1 ble., 2 trusses; ———, *American Farmer,* Havre, 6 cs.; Titan Shipping Co., *American Farmer,* Havre, 1 cs.; F. J. Emmerich, *Hansa,* Hamburg, 4 bls., 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Farmer,* London, 7 bls., 1 cs.

NEWSPRINT

International Paper Co., *P. T. Dodge,* Dalhousie, 2,046 rolls; International Paper Sales Co., *P. T. Dodge,* Dalhousie, 3,268 rolls; ———, *Bergensfjord,* Oslo, 245 rolls; Gilman Paper Co., *Uganda,* Port Alfred, 260 rolls; ———, *Uganda,* Port Alfred, 1,120 rolls; H. Reeve Angel & Co. Inc., *Scanstates,* Kotka, 8 bls., 350 rolls; Walker Goulard Plehn Co., *Scanstates,* Kotka, 71 rolls; Perkins Goodwin & Co., *Hansa,* Hamburg, 50 rolls; Jay Madden Corp., *Bremen,* Bremen, 251 rolls.

PRINTING PAPER

Schenley Import Corp., *Champlain,* Havre, 4 cs.; Steiner Paper Corp., *Beemsterdyk,* Rotterdam, 37 cs.

WRAPPING PAPER

Yardley & Co., *American Farmer,* London, 2 cs.; Globe Shipping Co., *Hansa,* Hamburg, 62 rolls; Heemsoth Pinckus & Kerner, *Hansa,* Bremen, 11 bls.; S. Dietzgen & Co., *Hansa,* Bremen, 14 cs.; F. J. Markwalter Co., *Hansa,* Bremen, 10 cs.; ———, *Hansa,* Bremen, 7 rolls; ———, *Beemsterdyk,* Rotterdam, 60 bls.

PACKING PAPER

A. J. Bullinger, *Beemsterdyk,* Rotterdam, 8 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., *American Farmer,* London, 12 cs.; Winsor & Newton, Inc., *American Farmer,* London, 4 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., *American Farmer,* London, 13 cs.; C. Schleicher & Schull Co. Inc., *Hansa,* Hamburg, 9 cs.

FILTER PULP

Gerhard & Hey, *Beemsterdyk,* Rotterdam, 10 cs.

COLORED PAPER

D. C. Andrews & Co., *Bremen,* Bremen, 1 cs.

BARYTA PAPER

Defender Photo-Supply Co. Inc., *Ilsenstein,* Antwerp, 2 cs.; Globe Shipping Co., *Bremen,* Bremen, 35 crates.

SURFACE COATED PAPER

J. J. Gavin, *Hansa,* Hamburg, 7 cs.; Japan Paper Co., Hansa, Hamburg, 1 cs.; C. Happel, *Hansa,* Hamburg, 1 cs.; Globe Shipping Co., *Hansa,* Bremen, 65 crates; Hensel Bruckman & Lorbacher, *Hansa,* Bremen, 3 cs.

BASIC PAPER

Globe Shipping Co., *Hansa,* Bremen, 15 crates.

DECALCOMANIAS

———, *Hansa,* Bremen, 3 cs.; Sellers Transportation Co., *Hansa,* Bremen, 21 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *American Importer,* Liverpool, 32 cs. (duplex).

TISSUE PAPER

W. J. Byrnes, *Queen Mary,* Southampton, 2 cs.; B. F. Drakenfeld & Co., *American Importer,* Liverpool, 1 cs.; F. C. Strype, *American Importer,* Liverpool, 4 cs.; Irving Trust Co., *Nagara Maru,* Kobe, 6 cs.; Jay Madden Corp., *Bremen,* Bremen, 13 bbls.

GREY PAPER

Nestle Milk Products Inc., *Laconia,* Liverpool, 5 bls.

BLOTTING PAPER

J. & H. Berge, *Laconia,* Liverpool, 1 cs.

STENCIL PAPER

———, *American Farmer,* London, 1 cs.

PAPER BOARD

J. P. Heffernan Paper Co., *Ilsenstein,* Antwerp, 8 cs.

PAPER TUBES

———, *Hansa,* Bremen, 200 ctn., 48 cs.

MISCELLANEOUS PAPER

Remington Rand, Inc., *Wales Maru,* Kobe, 3 cs.; Jay Madden Corp., *Minnequa,* Helsingfors, 37 bbls.; Moller Products Corp., *Awobasan Maru,* Yokohama, 10 cs.; G. F. Doherty & Co., *American Farmer,* Havre, 2 bls.; National Pulp & Paper Co. Ltd., *Scanstates,* Copenhagen, 184 rolls; E. B. Baehr & Sons, *Champlain,* Havre, 2 cs.; ———, *Nagara Maru,* Kobe, 35 cs.; ———, *Hansa,* Hamburg, 65 bls.; Keuffel & Esser Co., *Hansa,* Hamburg, 32 rolls, 31 cs.; Favor Ruhl & Co., *Bremen,* Bremen, 3 cs.

RAGS, BAGGINGS, ETC.

E. J. Keller Co. Inc., *Wales Maru,* ———, 134 bls. rags; ———, *Wales Maru,* Kobe, 159 bls. rags; Darmstadt Scott & Courtney, *Wales Maru,* Kobe, 800 bls. bagging; S. Shapiro & Sons, *Minnequa,* Gdynia, 52 bls. rags; ———, *Minnequa,* Gdynia, 57 bls. bagging; E. Butterworth & Co. Inc., *American Importer,* Manchester, 74 bls. old twine; M. Snedeker Corp., *American Importer,* Belfast, 133 bls. paper stock; Irving Trust Co., *Black Condor,* Rotterdam, 43 bls. rags; Loumar Textile By Products Co., *Black Condor,* Rotterdam, 46 bls. bagging; ———, *American Farmer,* London, 42 bls. paper stock; A. Searle, *American Farmer,* Havre, 36 bls. rags; Darmstadt Scott & Courtney, *Pr. Garfield,* Bombay, 82 bls. bagging; S. Shapiro & Sons, *Scanstates,* Gdynia, 56 bls. rags; Hoffman Lion Mills,

Nagara Maru, Kobe, 45 bls. rags; E. J. Keller Co. Inc., *Ilsenstein,* ———, 32 bls. bagging; ———, *Ilsenstein,* Antwerp, 13 bls. rags; ———, *Examelia,* Istanbul, 92 bls. rags; ———, *Examelia,* Casablanca, 7 bls. rags; D. Bennedetto, Inc., *Hansa,* Bremen, 10 bls. rags; E. J. Keller Co. Inc., *Pennland,* ———, 65 bls. bagging; E. J. Keller Co. Inc., *Nordhavet,* ———, 162 bls. paper stock.

GLUE STOCK, ETC.

Eastman Kodak Co., *Laconia,* Liverpool, 517 bags hide trimmings, ———, *Hansa,* Bremen, 300 bags hide glue.

CHINA CLAY

Whitaker Clark & Daniels, *Laconia,* Liverpool, 390 bags.

CASEIN

T. M. Duche & Sons, *Southern Cross,* Buenos Ayres, 834 bags; ———, *Hansa,* Hamburg, 70 bags.

WOOD PULP

Lagerloef Trading Co., *Lagaholm,* Mantyluoto, 1,655 bls. sulphite; Lagerloef Trading Co., *Minnequa,* Helsingfors, 342 bls. sulphite, 57 tons; *Lagerloef* Trading Co., *Minnequa,* Kemi, 635 bls. sulphate, 106 tons; Perkins Goodwin & Co., *Minnequa,* Gdynia, 1,250 bls. wood pulp, 193 tons; J. Andersen & Co., *Bergensfjord,* Oslo, 1,915 bls. sulphite; Irving Trust Co., *Bergensfjord,* Oslo, 1,003 bls. mechanical pulp; The Borregaard Co. Inc., *Bergensfjord,* Sarpsborg, 1,008 bls. sulphate; Perkins Goodwin & Co., *Bergensfjord,* Drammen, 500 bls. sulphite; ———, *Hallaren,* Horneborg, 459 bls. chemical pulp; Perkins Goodwin & Co., *Hallaren,* Sundsvall, 450 bls. sulphite; Perkins Goodwin & Co., *Hallaren,* Sundsvall, 300 bls. sulphate; Gottesman & Co., Inc., *Hallaren,* Sundsvall, 150 bls. sulphate; Lagerloef Trading Co., *Hallaren,* Viipuri, 468 bls. sulphate, 3,380 bls. sulphite; Lagerloef Trading Co., *Hallaren,* Rauma, 770 bls. sulphate, 520 bls. mechanical pulp; Perkins Goodwin & Co., *Scanstates,* Gdynia, 1,200 bls. wood pulp, 185 tons; Lagerloef Trading Co., *Scanstates,* Kotka, 360 bls. sulphate, 72 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 475 bls. sulphite, 95 tons; Lagerloef Trading Co., *Scanstates,* Helsingfors, 342 bls. sulphite, 57 tons; Gottesman & Co. Inc., *Scanstates,* Helsingfors, 1,608 bls. mechanical pulp, 272 tons; Gottesman & Co. Inc., *Wanja,* Halmstad, 1,250 bls. sulphite; Tradesmans Natl. Bank Trust Co., *Wanja,* Norrsundet, 1,125 bls. sulphate; Bulkley Dunton & Co., *Wanja,* ———, 3,450 bls. wood pulp, 690 tons; Price & Pierce, Ltd., *Wanja,* Wallvik, 600 bls. sulphite; N. Y. Trust Co., *Hansa,* Hamburg, 288 bls. wood pulp, 45 tons; E. J. Keller Co. Inc., *Hoegh Transporter,* ———, 100 bls. wood pulp.

WOOD PULP BOARDS

Jay Madden Corp., *Scanstates,* Kotka, 63 rolls, 17 tons; Jay Madden Corp., *Scanstates,* Wiborg, 65 bls., 11 tons; Griffin Rutgers, Inc., *Hansa,* Hamburg, 6 bls.; ———, *Hansa,* Hamburg, 267 bls., 26 tons.

WOOD PULP SHEETS

———, *Hansa,* Bremen, 100 bls.

NEWARK IMPORTS

WEEK ENDING AUGUST 1, 1936

H. G. Craig Co., *Donnacona I,* Donnacona, 560 rolls newsprint; H. G. Craig Co., *Newscarrier,* Donnacona, 331 rolls newsprint; H. G. Craig Co., *Donpaco,* Donnacona, 456,481 lbs. newsprint.

ALBANY IMPORTS

WEEK ENDING AUGUST 1, 1936

Gottesman & Co. Inc., *Griesheim,* Ronnebyredd, 3,416 bls. chemical pulp, 597 tons; Gottesman & Co. Inc., *Griesheim,* Iggesund, 500 bls. sulphite, 100 tons; Bulkley Dunton & Co., *Griesheim,* ———, 2,250 bls. wood pulp; Pagel Horton & Co., Inc., *Griesheim,* Gefle, 1,000 bls. sulphate; Pagel Horton & Co. Inc., *Griesheim,* Gefle, 7,125 bls. sulphite; Pagel Horton & Co. Inc., *Griesheim,* Sikea, 1,500 bls. sulphite, 250 tons; ———, *Griesheim,* Norrsundet, 3,000 bls. sulphate, 600 tons; Price & Pierce, Ltd., *Griesheim,* Orviken, 1,500 bls. unbleached sulphite, 250 tons; Price & Pierce, Ltd., *Halleren,* Stockholm, 600 bls. bleached sulphite, 100 tons; ———, *Hallaren,* Horneborg, 521 bls. chemical pulp; Perkins Goodwin & Co., *Hallaren,* Sundsvall, 5,400 bls. sulphate, 1,200 bls. sulphite; Castle & Overton, Inc., *Hallaren,* Viipuri, 3,012 bls. wood pulp; Lagerloef Trading Co., *Hallaren,* Viipuri, 1,304 bls. sulphite, 2,540 bls. sulphate; Lagerloef Trading Co., *Hallaren,* Rauma, 1,402 bls. sulphite; Bulkley Dunton & Co., *Vigor,* ———, 3,600 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING AUGUST 1, 1936

Gottesman & Co. Inc., *Minnequa,* Sweden, 2,500 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING AUGUST 1, 1936

F. S. Webster Co. Inc., *Laconia,* Liverpool, 4 cs. tissue paper; G. F. Malcolm, Inc., *Laconia,* Liverpool, 11 cs. tissue paper; ———, *Laconia,* Liverpool, 220 bags hide cuttings; ———, *Laconia,* Liverpool, 29 bls. rags; ———, *Laconia,* Liverpool, 18 bls. thread waste; New England Waste Co., *Nagara Maru,* Kobe, 25 bls. cotton waste; Bulkley Dunton & Co., *Vigor,* ———, 1,650 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 1, 1936

Philadelphia National Bank, *Kwnto Maru,* Shanghai, 100 bls. cotton waste; Price & Pierce, Ltd., *Griesheim,* Wallvik, 600 bls. sulphite, 100 tons; Gottesman & Co. Inc., *Griesheim,* Waija, 5,700 bls. sulphate, 950 tons; Gottesman & Co. Inc., *Griesheim,* Iggesund, 1,000 bls. sulphite, 200 tons; Lagerloef Trading Co., *Scanstates,* Kotka, 910 bls. wood pulp boards, 104 tons; J. W. Hampton Jr. & Co., *Scanstates,* Kotka, 546 rolls newsprint; J. W. Hampton Jr. & Co., *Scanstates,* Kotka, 77 bls. printing paper; H. Reeve Angel & Co. Inc., *Scanstates,* Kotka, 68 rolls newsprint; Castle & Overton, Inc., *Scanstates,* Wiborg, 1,388 bls. wood pulp, 275 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 318 bls. sulphate, 53 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 111 bls. sulphite, 20 tons; J. Andersen & Co., *Scanstates,* Helsingfors, 600 bls. mechanical pulp, 101 tons; E. J. Keller Co. Inc., *Beemsterdyk,* ———, 48 bls. rags.

WILMINGTON IMPORTS

WEEK ENDING AUGUST 1, 1936

Price & Pierce, Ltd., *Griesheim,* Wallvik, 600 bls. sulphate, 100 tons; Price & Pierce, Ltd., *Griesheim,* Wallvik, 3,000 bls. sulphite, 500 tons; Price & Pierce, Ltd., *Griesheim,* Orviken, 4,800 bls. chemical pulp, 800 tons; Pagel Horton & Co. Inc., *Griesheim,* Sikea, 2,100 bls. sulphite, 350 tons; E. J. Keller Co. Inc., *Sagoporack,* ———, 943 bls. wood pulp; Price & Pierce, Ltd., *Belos,* ———, 600 tons unbleached sulphite.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 1, 1936

Congoleum Nairn Co., *Exermont,* Marseilles, 362 bls. rags; Castle & Overton, Inc., *Black Condor,* Rotterdam, 650 bls. wood pulp, 130 tons; American British Chemical Supplies, *Black Condor,* Antwerp, 713 bags casein; Tradesmans Natl. Bank Trust Co., *Wanja,* Norrsundet, 1,000 bls. sulphate; Perkins Goodwin & Co., *Wanja,* Norrsundet, 750 bls. sulphate; ———, *Wanja,* Iggesund, 875 bls. sulphite, 175 tons; Atterbury Bros. Inc., *Wanja,* ———, 3,000 bls.

(Continued on page 47)

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1936.

Conditions in the local paper market are more favorable and the customary Midsummer lull is not nearly so pronounced this year. Sales forces of the leading paper organizations are girding up their loins for an active Autumn campaign. Prices are steady to firm, in most instances.

The feature of the newsprint paper market this week is the announcement by the Great Northern Paper Company of an advance of $1.50 per ton for next year, making the 1937 quotation $42.50 per ton, delivered. Other newsprint interests had been predicting increases of from $2.50 to $5 per ton over current prices.

Steadiness prevails in the fine paper market. Demand for book, bond, ledger and cover papers is well up to average for the season. Prices remain unchanged. Tissues are moving in good volume. The coarse paper market continues to display strength. Summer specialties are in heavy request. The board market is little changed.

Mechanical Pulp

Due to the long drought this summer the ground pulp market is exhibiting a stronger undertone. At the same time, offerings of mechanical pulp are sufficient to take care of the prevailing demand, although accumulations are not excessive. Prices are generally holding to previously quoted levels.

Chemical Pulp

The chemical pulp market continues firm. Offerings of bleached sulphite and kraft pulps are decidedly scarce and orders for delivery in the forthcoming year have been freely made. Other grades of chemical pulp are steady. Domestic and foreign bleached sulphite are quoted at from $2.60 to $3.30 per 100 pounds, on dock, Atlantic ports.

Old Rope and Bagging

Business in the old rope market is only moderately active. Paper mill demand for domestic and foreign old manila rope is restricted. Mixed strings are moving slowly. Old rope prices remain unchanged. The bagging market is irregular. Prices on spot and gunny bagging are rather soft. Roofing bagging is quiet.

Rags

The domestic rag market is dull. Demand for new and old cotton rags is rather listless, with the exception of No. 1 white shirt cuttings, which are in fairly good request. There are some inquiries for roofing grades, which may materialize into desirable orders. The foreign rag market continues quiet, with prices nominal.

Waste Paper

Sentiment in the paper stock market is more optimistic than of late, due mainly to the approach of Fall. The board mills are evincing interest in the lower grades and trading should become more lively in the near future. No radical price changes have been reported lately. The higher grades of paper stock continue steady.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various varieties, however, is better than usual at this time of year. There are a number of inquiries around for future requirements and the outlook for the last quarter of the year is promising.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 46)

sulphite, 500 tons; Price & Pierce, Ltd., *Wanja,* Wallvik, 3,000 bls. sulphate; Price & Pierce, Ltd., *Wanja,* Wallvik, 1,200 bls. sulphite; Perkins Goodwin & Co., *Wanja,* Halmstad, 2,500 bls. sulphite; The Borregaard Co. Inc., *Wanja,* Halmstad, 125 bls. sulphite; Gottesman & Co. Inc., *Wanja,* Halmstad, 750 bls. sulphite; N. Y. Trust Co., *Beemsterdyk,* Rotterdam, 236 bls. wood pulp; Congoleum Nairn Co., *Beemsterdyk,* Rotterdam, 100 bls. rags.

NORFOLK IMPORTS

WEEK ENDING AUGUST 1, 1936

Bulkley Dunton & Co., *Fechenheim,* ———, 1,500 bls. wood pulp.

OAKLAND IMPORTS

WEEK ENDING AUGUST 1, 1936

E. J. Keller Co. Inc., *Seattle,* ———, 220 bls. paper stock; E. J. Keller Co. Inc., *Winnipeg,* ———, 361 bls. paper stock; E. J. Keller Co. Inc., *San Diego,* ———, 309 bls. paper stock.

LOS ANGELES IMPORTS

WEEK ENDING AUGUST 1, 1936

New Fashion Importing Co., *Awabasan Maru,* Yokohama, 9 cs. paper.

MONTREAL IMPORTS

WEEK ENDING AUGUST 1, 1936

Gottesman & Co., Inc., *Loke,* Latvia, 2,540 bls. woodpulp; Gottesman & Co. Inc., *Loke,* Finland, 1,430 bls. wood pulp; Pagel Horton & Co. Inc., *Heroy,* Sweden, 2,400 bls. wood pulp.

Calco Additions to the Helmerco Line

The Heller & Merz Division of the Calco Chemical Company, Inc., has announced the following new standards: Helmerco Green BGC, Helmerco Green MYC, Helmerco Red 6GC.

These types are the first of a series of additions to the Helmerco line, of which only the Helmerco Blues have previously been offered. They are of primary interest for the production of fast to light bond, wrappings, tissues, and in the preparation of a wide range of non-bleeding light shades of various finishes. They may also be used for paper coating and calender stain work, particularly when fastness to light and non-bleeding are required.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1936.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Contract shipments are moving in good volume for the season. Prices are steady and unchanged. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is quoted at 16½ and finely ground at 17 cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is moderately active. The contract movement is normal for the season. Solid caustic soda is still quoted at $2.55 to $2.60; while the flake and ground are selling at $2.95 to $3.00 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is steady to firm. Prices are generally holding to formerly quoted levels. Imported china clay is selling at $12.50 to $21 per ton, ship side; while domestic paper making clay is offered at $6.50 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is fairly persistent. The contract movement is well up to average for the time of year. Prices are well maintained. Chlorine is quoted at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN.—The rosin market is strong. Paper making gum rosin is now quoted at $5.90 and wood rosin at $6.00 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.92 per 100 pounds, in tank cars, at works.

SALT CAKE.—Business in the salt cake market is fairly brisk. The contract movement is regular. Prices are steady. Salt cake is quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works; while imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is displaying strength. Shipments against contract are moving freely. Prices are steady and unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—Some improvement transpired in the starch market. Demand from the paper mills is satisfactory for the season. Prices are steady. Special paper making starch is quoted at $3.55 per 100 pounds, in bags; and at $3.82 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is well sustained. Contract shipments are moving in good volume. Prices are holding to schedule. Commercial grades are quoted at $1.35 to $1.60; and iron free at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market continues steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—Conditions in the talc market are fairly satisfactory. While demand is mainly routine, the price situation is firm. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds		Ledgers
No. 1 Sulphite	7.50	@	8.50
No. 2 Sulphite	6.50	@	7.50
No. 3 Sulphite	6.00		7.00
No. 4 Sulphite	5.50		6.50
Book, B Grade, Cased			
S. & S. C.	5.85	@	6.60
S. & S. C. Litho	6.10	@	6.85
M. F.	5.60	@	6.35
No. 4 Grade			
Coated and Enamel	6.80	@	7.65
Coated Litho	6.80	@	7.65
Tissues—Per Ream—			
White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1½	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26
Paper Towels—			
Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—			
Roll, contract	41.00	@	—
Sheets	46.00	@	—
Kraft—			
No. 1 Northern	4.25	@	4.75
Standard	4.12½	@	—
Southern	4.00	@	—
Boards- per ton—			
News	32.50	@	35.00
Chip	32.50	@	35.00
Sgl. Mla. Lt. Chip	45.00	@	47.50
Jute Lined Chip	42.50	@	45.00
Kraft Liners	60.00	@	62.50
White Pat. Coated	57.50	@	60.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	24.00	@	25.00
Dry	24.00	@	25.00

(Delivered)

No. 1 Domestic and Canadian	27.00	@	28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.70	@	3.30
Division 2	2.65	@	2.75
Division 3	2.60	@	2.70
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	2.10
Other Than Easy Bleaching—			
Class 2. Higher than Standard	2.00	@	2.05
Class 3, Standard	1.95	@	2.00
Class 4. Lower than Standard	1.90	@	1.95

(On Dock, Atlantic Ports)

Kraft Bleached	3.00	@	3.25
Kraft Light & Strong	2.10	@	2.20
Kraft No. 1	1.85	@	2.10
Kraft No. 2	1.70	@	1.85

(F. o. b. Pulp Mill)

Kraft Domestic	1.80	@	2.00

(Delivered)

Soda Bleached	2.60	@	—

• Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	7.75
Silesias No. 1	5.50	@	5.75
New Unbleached	8.25	@	8.50
New Soft Blacks	3.75	@	4.00
Blue Overall	6.50	@	6.75
Fancy	3.00	@	3.25
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.50	@	3.75
O. D. Khaki Cuttings	4.25	@	4.50
Men's Corduroy	2.00	@	2.25
New Mixed Blacks	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.75	@	3.00
White, No. 2—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	1.75	@	1.80
No. 2	1.15	@	1.25
No. 3 (bagging)	1.10	@	1.15
No. 4	1.10	@	1.15
No. 5A	.80	@	.90

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.50
New Mixed Cuttings	2.00	@	2.25
New Light Silesias	4.50	@	5.00
Light Flannelettes	4.50	@	5.00
New White Cuttings	7.00	@	7.50
New Light Oxfords	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.50	@	4.00
German Blue Linens	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	2.00	@	2.25
Linsey Garments	2.15	@	2.25
Dark Cottons	1.90	@	2.10
Old Shopperies	1.75	@	2.00
New Shopperies	1.75	@	2.00
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.10	@	2.15
Domestic	1.75	@	1.85
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	1.85	@	2.05
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	2.40	@	2.60
Domestic	2.25	@	2.50
Mixed Strings	1.10	@	1.15
New Burlap Cut	2.75	@	3.00
Hessian Jute Threads—			
Foreign	3.00	@	3.25
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.25	@	2.35
Hard White No. 2	2.10	@	2.20
Soft White No. 1	1.95	@	2.05
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.35	@	1.45
Bogus Wrapper	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.05	@	1.30
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.50	@	.60
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.30	@	.35

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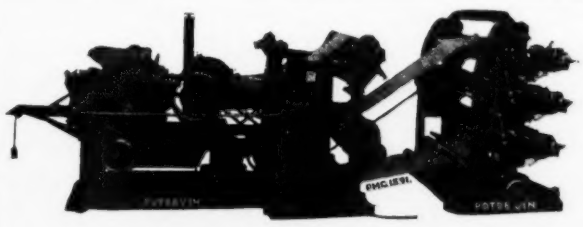

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Coarse Polished—			
India	.13¼	@	.15¾
Belg. White Hemp	.14½	@	.17¾
India Compress	.13¾	@	.14¾
Fine Polished—			
Fine India	.21½	@	.23½
Special	.19½	@	.21½
Unpolished—			
Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾
(Hard Fibre)			
Bond	.09½	@	.18
Anchor	.09	@	.10½
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.08	@	.08½
New White, No. 2.	.04½	@	.05
Light Silesias	.05½		—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.06	@	.06½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01¾	@	.02¾
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	1.75	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed.	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	—
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	—
Domestic No. 2	1.40	@	—
Roofing bagging	1.10	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.50
No. 2	.90	@	1.00
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.30	@	2.40
No. 2 Hard White.	2.10	@	2.20
No. 1 Soft White.	1.80	@	1.85
No. 2 Soft White.	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white.	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.50	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.35	@	.40
Straw Board Chip	.40	@	—
Binders Board Chip.	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila. Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04½	@	—
(Delivered New England points)			
Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White.	2.00	@	2.10
No. 1 Soft White.	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.05	@	1.12½
Mixed Papers	.30	@	—
Print Manila	.47½	@	.50
Container Manilas	.27½	@	—
Old Newspapers	.30	@	—
Overissue News	—	@	.40
Box Board Chips	—	@	.25
Corrugated Boxes	.47½	@	—
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.35	@	2.45
Domestic	2.25	@	—
Transmission Rope	1.20	@	1.30
Jute Rope	1.90	@	2.10
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.75	@	1.80
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	1.90	@	2.00
Domestic	1.60	@	1.75
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.10	@	2.25
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.25	@	2.35
Heavy Baling Bagging	1.75	@	2.10
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.01¾	@	.02
New White No. 1.	.07	@	.07½
New White No. 2.	.04	@	.04¼
Silesias No. 1	.05	@	.05½
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.07¼	@	.07¾
Blue Cheviot	5.50	@	6.00
Fancy	.02½	@	.02¾
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	5.00	@	5.50
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.03¾	@	.04¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.05¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.30	@	1.40
No. 2	1.20	@	1.25
No. 3	—	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.50	@	1.70
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.75	@	1.90
Old Linsey Garments	1.75	@	2.00
New Silesias	5.00	@	5.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	40.50	@	—
Sheets	45.00	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock.	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07¼	@	.07¾
Fancy Shirt Cuttings	.02¾	@	.03